

THE MYTH OF THE UNSUSTAINABLE ARMY: AN ANALYSIS OF ARMY  
DEPLOYMENTS, THE ALL VOLUNTEER FORCE, AND THE ARMY FORCE  
GENERATION MODEL

A thesis presented to the Faculty of the U.S. Army  
Command and General Staff College in partial  
fulfillment of the requirements for the  
degree

MASTER OF MILITARY ART AND SCIENCE  
General Studies

by

Michael S. Johnson, MAJ, USA  
B.A., University of California, Berkeley, California, 1997  
M.P.A., Harvard Kennedy School of Government, Boston, MA, 2006

Fort Leavenworth, Kansas  
2009

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REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 12-06-2009		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) AUG 2008 – JUN 2009	
4. TITLE AND SUBTITLE THE MYTH OF THE UNSUSTAINABLE ARMY: AN ANALYSIS OF ARMY DEPLOYMENTS, THE ALL VOLUNTEER FORCE, AND THE ARMY FORCE GENERATION MODEL				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) MAJ Michael S. Johnson				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT In 2008 the Army declared that the current demand for forces in Iraq and Afghanistan was unsustainable--this thesis asks if this is a fair and accurate assessment. The Army developed the Army Force Generation Model in response to a condition of continuous deployments. This model established ratios of deployment to dwell time that separate into "steady state" and "sustainable surge" conditions. Through a thorough examination of brigade deployment histories, recruitment and retention numbers, and the Army Force Generation model, this thesis finds that the Army is sustainable at deployment levels experienced between 2005 and 2008. Additionally, this thesis finds that the Army model does not account for unit overlap, assumes mobilization authorities it does not possess, and serves as a force sizing construct. The Army's message of unsustainability and its current construct of the Army Force Generation Model should be re-evaluated in light of these findings.					
15. SUBJECT TERMS Deployment, Brigade Combat Teams, BCTs, Army Force Generation, ARFORGEN, Boots on the Ground, BOG, dwell, suicide, officer shortfall, recruitment, retention, divorce, obesity, RIPTOA					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT  (U)	18. NUMBER OF PAGES  99	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. PHONE NUMBER (include area code)

Standard Form 298 (Rev. 8-98)  
Prescribed by ANSI Std. Z39.18

MASTER OF MILITARY ART AND SCIENCE  
THESIS APPROVAL PAGE

Name of Candidate: Michael S. Johnson

Thesis Title: THE MYTH OF THE UNSUSTAINABLE ARMY: AN ANALYSIS OF  
ARMY DEPLOYMENTS, THE ALL VOLUNTEER FORCE, AND THE  
ARMY FORCE GENERATION MODEL

Approved by:

\_\_\_\_\_, Thesis Committee Chair  
Gregory T. Beck, M.A.

\_\_\_\_\_, Member  
MAJ(P) Eric A. Hollister, M.A.

\_\_\_\_\_, Member  
Stephen A. Bourque, Ph.D.

Accepted this 12th day of June 2009 by:

\_\_\_\_\_, Director, Graduate Degree Programs  
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

THE MYTH OF THE UNSUSTAINABLE ARMY – AN ANALYSIS OF ARMY DEPLOYMENTS, THE ALL VOLUNTEER FORCE, AND THE ARMY FORCE GENERATION MODEL. By Major Michael S. Johnson, 99 pages.

In 2008 the Army declared that the current demand for forces in Iraq and Afghanistan was unsustainable--this thesis asks if this is a fair and accurate assessment. The Army developed the Army Force Generation Model in response to a condition of continuous deployments. This model established ratios of deployment to dwell time that separate into “steady state” and “sustainable surge” conditions. Through a thorough examination of brigade deployment histories, recruitment and retention numbers, and the Army Force Generation model, this thesis finds that the Army is sustainable at deployment levels experienced between 2005 and 2008. Additionally, this thesis finds that the Army model does not account for unit overlap, assumes mobilization authorities it does not possess, and serves as a force sizing construct. The Army’s message of unsustainability and its current construct of the Army Force Generation Model should be re-evaluated in light of these findings.

## ACKNOWLEDGMENTS

I'd like to thank my wife, the members of my committee, my instructors at the Command and General Staff College, and the researchers in the CARL Library. Without all of their help, encouragement, assistance, and advice I would not have been able to complete this paper. Thank you.

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## ACRONYMS

ARFORGEN	Army Force Generation Model
AVF	All-Volunteer Force
BCT	Brigade Combat Team
BOG	Boots on the Ground
CAT	Category (of the Armed Forces Qualification Test)
DOD	Department of Defense
G-1	US Army Human Resources Department
GED	General Educational Development assessment
QDR	Quadrennial Defense Review
RIPTOA	Relief in Place, Transition of Authority



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## CHAPTER 1

### INTRODUCTION

Today's Army is out of balance. The current demand for our forces in Iraq and Afghanistan exceeds the sustainable supply and limits our ability to provide ready forces for other contingencies.

— Department of the Army, *Army Posture Statement (2008)*

Continual deployments in support of the Global War on Terrorism (GWOT) have caused the Army to become out of balance with the demand for forces exceeding the sustainable supply.

— Department of the Army, *2008 Army Modernization Strategy*

The tempo of deployments for our Soldiers and Families is unsustainable.

— Department of the Army, *The Army Strategy (2008)*

#### Common Knowledge: The Army is Overly Stressed and Unsustainable

Seven full years have passed since the attacks of September 11, 2001, and a full six years have passed since Army units began to deploy in earnest to unseat Saddam Hussein in Iraq in 2003. Beginning in 2001, the Department of Defense (DOD) asked the Army and the other services to alter their models for deployment in order to meet a future of continuous deployments. In response to this request, the Army adopted the Army Force Generation model (ARFORGEN) as its principal management tool. The concept relies on a progression of readiness by units from a status of “not ready” to a status of “deployable” through three distinct phases: reset, train/ready, and available. Embedded within the ARFORGEN model are goals for preparing units to return to combat. In other words, benchmarks were developed to determine the proper amount of time that a unit deploys compared to the amount of time that the unit is at its home station.

It is common knowledge among the public, politicians, and soldiers, that the stresses of constant deployment since 2001 severely depleted the Army. Worries abound

about its strength and cohesiveness and the maintenance of the all volunteer force (AVF). Units that deploy for fifteen month tours in Iraq and Afghanistan return only to spend twelve months at home before deploying again. Serious concerns are expressed about the health of the AVF: a shortfall of officers, suicides, and the poor quality of recruits. Others point to increasing rates of obesity and divorce as signs of a decline in the overall health of the force. The difficulties of fighting an unconventional war that the Army was not trained or equipped to fight are debated by policy experts. All of these and other issues have been discussed at length and are common knowledge. But, is it true that the demand for forces in Iraq and Afghanistan exceeds the sustainable supply? Has the Army truly reached an unsustainable level of demand for its forces?

### Thesis Question

This thesis asks, is the current demand for forces in Iraq and Afghanistan exceeding the sustainable supply? Or, rephrased, is the Army unsustainable at the current operational tempo? In order to answer this question, it will be necessary to explore in detail what the DOD asked its soldiers to do in response to a future of continuous deployments, and how this aligns with the ARFORGEN process. A thorough examination of the deployment history of Brigade Combat Teams (BCTs) since 2001 provides metrics of stress on the force. These deployment metrics require comparison with recruitment, retention, and other data to evaluate their effects on the AVF.

As a secondary question, it is important to know what lessons the past seven years can tell us about ARFORGEN as it is currently constructed. This evidence should indicate whether the operational tempo is unsustainable and whether ARFORGEN is properly formulated to meet these demands.

### Assumptions: The Inviolable All Volunteer Force

A major assumption of this thesis is that only a threat to the AVF, not concerns about equipment or policy, will cause the Army to be considered unsustainable. The Mine Resistant Ambush Protected vehicle is an example of equipment that, given the appropriate political prioritization by Secretary of Defense Robert Gates, went “from zero to ten thousand in just about a year and a half” (Department of Defense 2008b). But, unlike a machine, ultimately people can choose whether or not to serve in the military.

The top concern for both military officers and political leadership when considering war and deployments in the 21st century has been the inviolable nature of the AVF. On September 28, 1971, President Nixon signed the bill that extended the draft for only two more years, committing the country to transition to an all-volunteer force (Rostker 2006, 4). Since then, the armed forces have not reverted to a draft, nor has any serious attempt been made to reinstitute one. In October of 2004 the House of Representatives brought to vote legislation that would reinstitute a draft, and it was summarily defeated 402 to 2 (Babington and Oldenburg 2004). Even under the negative political pressures of the Iraq war and concern for the Army, lawmakers found almost zero support for such action, thereby indicating a clear recognition of the importance of the AVF. In fact, looking back on thirty years of success, one observer notes:

It is the quality of these forces that has made the U.S. military so effective. High-technology weapons are important, but they are not the fundamental reason for our success. People are. (Bicksler, Gilroy, and Warner 2004, 33)

This fundamental reason for success is not lost on either military officers or politicians. Accordingly, the Army constantly assesses the viability of the AVF and in its 2008 Posture Statement warns of a “significant risk to the All-Volunteer Force”

(Department of the Army 2008c, 6). Couching the current demands of the Army in wars in Afghanistan and Iraq in terms of risk to the AVF indicates the importance of this policy to the Army leadership. But, the concern for its viability and acknowledgment of its importance can be traced to the highest office.

President George W. Bush, when asked by Bob Woodward if he ever considered full mobilization, meaning a possible draft, responded:

No, because maintain[ing] an active military presence . . . is going to require a firm commitment by those who wear the uniform, and the only way to guarantee that firm commitment is through the volunteer service. And secondly, I remember the unbelievable angst that gripped America when kids were being drafted into a military in which they did not want to serve [Vietnam]. (Woodward 2008, 319)

The specter of a draft Army still haunts the highest corridors of Washington. The president's response indicates, as another observer notes, that "the AVF is one of the most successful social policies of the last 50 years" (Bicksler, Gilroy, and Warner 2004, 33). The service itself also recognizes the importance of manpower by stating in the 2008 Army Strategy that, "We are committed to restoring balance to preserve our All-Volunteer Force" (Department of the Army 2008d, 7). The continuation of the AVF, as indicated by statements by the president and votes in the congress, even while fighting wars in Iraq and Afghanistan, can be rightly recognized as the foundation of American military success in the past and into the future. Voluntary service is the foundation of the modern U.S. Army, and it is at the peril of the nation that it should be weakened.

### Limitations

The deployment analysis of this thesis will focus on the Army's active component. ARFORGEN was developed to holistically include the reserve component

and there is a discussion describing how the reserve component is included in the model. However, a dearth of reserve component deployment data currently prevents a thorough analysis.

Some of the material that best describes ARFORGEN is classified “For Official Use Only.” In order to ensure the widest distribution of this thesis as possible, all of the sources are unclassified and open source. By limiting the extent of the thesis in this manner, there may be some areas, particularly when describing the nuances of ARFORGEN, that may appear to lack substantiation. However, descriptions in open source Army documents like the *Army Posture Statement*, *The Army Strategy*, and the *Army Modernization Strategy* allow a thorough examination.

This will not be a study focused solely on personnel strain, although it will be a component of the argument. The thesis is designed to look at the strategic implications of ARFORGEN including the goal ratios set for deployments, assumptions about the reserve component, force sizing implications, and how all of these apply to the overall sustainability of the Army.

### Proposal

A correct development of a force rotation model is vitally important to the Army and there is time to incorporate lessons learned over the past seven years about the resiliency of the institution. These lessons must be absorbed while appreciating the importance of maintaining the volunteer force as described in this chapter. The concept of ARFORGEN is still being developed by the Headquarters, Department of the Army staff. This thesis proposes to provide timely analysis and input into its future development.

To understand the impact of the past seven years of deployment experience on any force generation model, one must have a thorough understanding of the relevant aspects of the Army's current force generation model. The next chapter will lay out the pertinent foundational elements of ARFORGEN including a brief history of progressive readiness, the three step model, and target ratios.



## CHAPTER 2

### HOW DID WE GET HERE? HISTORICAL BACKGROUND OF ARFORGEN

#### Historical Background

After the release of the 2001 *Quadrennial Defense Review (QDR)*, the Army, along with the rest of the military, realized its future was one of continuous deployments. Under this new reality, the Army moved from a tiered readiness system to a system that could continually produce a steady stream of deployable forces--a progressive readiness system. ARFORGEN is the Army's progressive readiness model.

#### A Rotational Army: Direction from the Department of Defense

The terrorist attacks of September 11, 2001 changed radically the manner in which the Department of Defense saw the future of warfare for the United States. The 2001 *QDR*, a report by the Department of Defense (DOD) required by the congress every four years, was published later that month. In this new work, the developers saw a need for the DOD to explicitly plan to provide "a rotational base - a larger base of forces from which to provide forward deployed forces - to support long-standing contingency commitments" (Department of Defense 2001, 21). This requirement was a clear indication that the Army needed to change its system. The *QDR* went further by noting that in previous years the deployment burden "was not spread among the entire force, due in part to the belief that the deployments were temporary and that permanent changes in rotational procedures and forward presence were not required" (Department of Defense 2001, 58). Clearly, the Secretary of Defense was establishing a new direction for the department, one that required a rotational force and that this requirement for rotations

was spread across the entire force. Although unclear what is meant by “entire force”, one can deduce that it means both the integration of the entire active duty force (as opposed to a select few units under a tiered readiness system) and the reserve component into the rotation. Therefore, the 2001 *QDR* directed all the services (Army, Navy, Air Force, and Marine) to consider rotational requirements as a permanent part of their future.

Four years later, the 2006 *QDR* refined the earlier vision as the passage of time allowed further insight. The United States invaded Iraq in March, 2003 and was now fighting wars in both Iraq and Afghanistan. These wars required a continuous stream of forces and a new articulation of the force sizing construct. The new *QDR* stated that, “For the foreseeable future, steady-state operations, including operations as part of a long war against terrorist networks, and associated rotation base and sustainment requirements, will be the main determinant for sizing U.S. forces” (Department of Defense 2006, 36). The qualification of the foreseeable future as a steady-state operation, with associated rotation and sustainment requirements, was the final formalization of the department’s vision to develop forces that could rotate and sustain themselves on a continual basis. It is important to note that the 2006 *QDR* created a clear link between the rotation base and the sizing of U.S. forces, which is important later in the discussion of ARFORGEN as a force sizing construct.

This document also refined the force planning construct, or the effort the department should devote to different areas when planning. It delineated three objective areas--providing a scale to compare against Army goals. Within each of the three objective areas (Defend the Homeland; Prevail in the War on Terror and Conduct Irregular Operations; and Conduct and Win Conventional Campaigns) DoD plans must

account for both the activities continuously being performed (steady-state) and those that occur episodically (surge) (Department of Defense 2006, 37). By analyzing the different levels of effort described by the *QDR*, it becomes possible to describe what is being asked of the Army. One can benchmark the lowest level of effort, the current level of effort, and the greatest level of effort required of the Army.

The lowest level of effort required of the Army is described in the steady-state requirement of “Defend the Homeland.” Tasks described include things such as routine homeland security training and exercises; strategic deterrence; routine maritime operations conducted with the U.S. Coast Guard; North American air defense; missile defense; and readiness to provide support to civil authorities for consequence management events (Department of Defense 2006, 37). A surge, in the objective area “Prevail in the War on Terror and Conduct Irregular Operations,” describes the current level of effort of the Army and is, in fact, defined as “the current level of effort associated with operations in Iraq and Afghanistan” (Department of Defense 2006, 38). A surge, when “Conducting and Winning Conventional Campaigns,” describes the highest level of effort required of the Army and outlines a requirement to “wage two nearly simultaneous conventional campaigns (or one conventional campaign if already engaged in a large scale, long-duration irregular campaign)” (Department of Defense 2006, 38). These descriptions of the levels of effort required, tied to the current situation, provide the scale of requirements outlined by DoD and serve to bracket the lowest and highest levels of effort for which the Army must prepare. The table below depicts these requirements and can be used to compare target ratios outlined in ARFORGEN. (See table 2)

Table 1. 2006 <i>QDR</i> Levels of Effort			
	Defend the Homeland	Prevail in the war on Terror and Conduct Irregular Operations	Conduct and Win Conventional Campaigns
Steady-State	<i>Lowest</i> Level of Effort		
Surge		<i>Current</i> Level of Effort	<i>Highest</i> Level of Effort

*Source:* Table created by author

### Army Response: A Rotational Model

The Army, between 2001 and 2006, was keenly aware of the new reality and was working on ways to prepare its forces for the future. In the 2003 *Army Posture Statement*, which annually serves as a basic reference on the state of the Army, the Department of the Army admitted that it was:

Studying the use of unit rotations for other locations and in the war on terrorism. Units would know of these rotations well in advance, providing families with greater predictability and enabling focused preparation, both of which contribute to increased combat readiness of the unit. (Department of the Army 2003, 36)

The development of a holistic model of rotational forces was revealed three years later in the 2006 edition which announced the adoption of the Army Force Generation model (ARFORGEN). This construct “will establish and coordinate cycles of readiness and training for all active and reserve units” (Department of the Army 2006b, 6).

### History of ARFORGEN

ARFORGEN first appeared in the 2006 *Army Posture Statement* as one of four major decisions made in 2005 (Department of the Army 2006b, 6). Although it was adopted officially in the 2006, one can surmise that the Army worked diligently at

developing a progressive readiness model throughout 2005, and perhaps earlier. Several strategic themes of the model were detailed in the 2006 *Army Game Plan*: a continuous supply of units, assured and predictable access to the reserve component, a system of cyclic readiness, and the opportunity to synchronize a broad range of institutional army processes (Department of the Army 2006a, ENCL 8). These themes remain central today. Figure 1 below introduces specific terms: Contingency Expeditionary Force, Ready Expeditionary force, Deployment Expeditionary Force, Reset, Ready, and Available. Each will be explored to facilitate a general understanding of the Army's model.

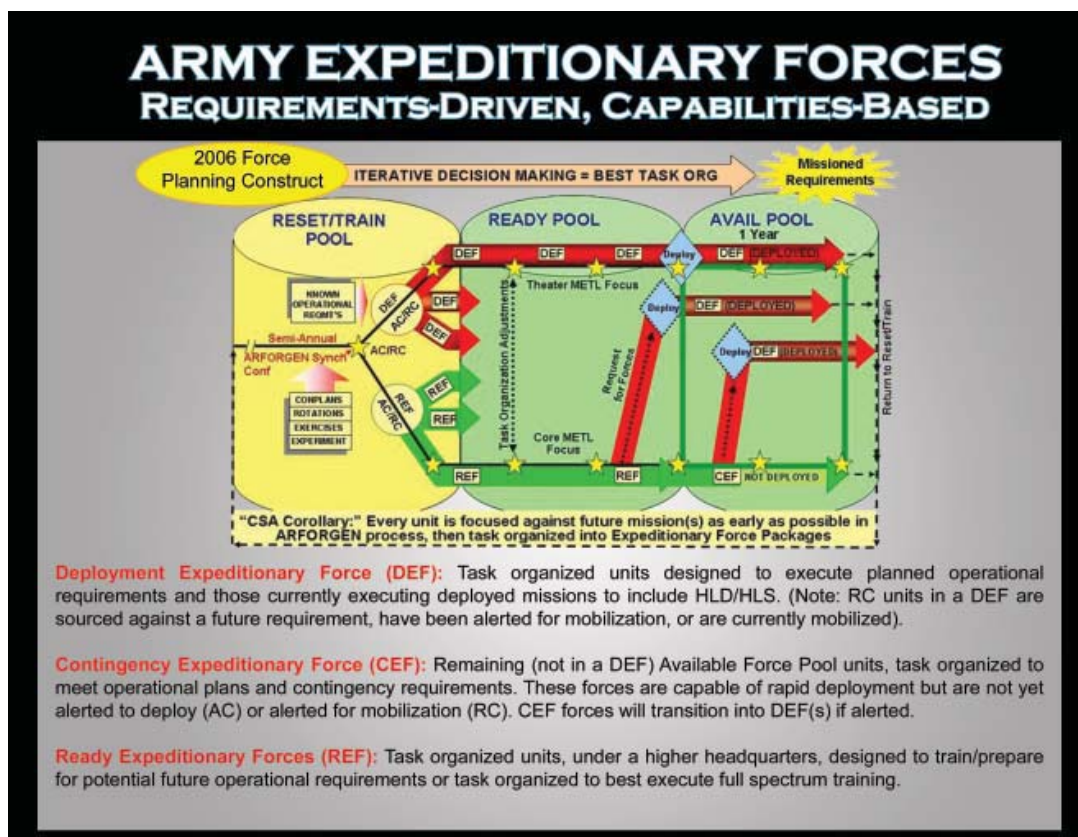


Figure 1. The Army Force Generation Model Construct

Source: Department of the Army, 2006 *Game Plan* (Washington, DC: Government Printing Office, 2006), ENCL 8.

## ARFORGEN Today: Three Step Model

The *2008 Army Modernization Strategy* outlined the importance of today's force generation model and its difference from previous concepts:

ARFORGEN manages the Army's limited resources more effectively and rids the Army of have and have not units. Under ARFORGEN, units progressively increase in readiness as they progress through three readiness pools. (Department of the Army 2008a, 15)

The most important change this model brought to the force was the end of "have" and "have-not" units. This means that there were no longer a small number of have units considered most ready to deploy and fight receiving a disproportionate amount of the resources, and have-not units, last to deploy, receiving less resources. The concept of have and have not-units--also known as tiered readiness--was appropriate for an environment where very few organizations deployed and the Army readied itself for the occasional major deployment of short duration, like Desert Storm in 1990. Under these conditions, the Army could immediately deploy its most ready units, the have units, while spending time to improve the remainder that was not so ready. However, the tiered readiness concept is inappropriate for an environment of constant deployments because the distribution of resources under this concept is fixed, not cyclical, and therefore not aligned with the current operational tempo. The ARFORGEN concept is more appropriate for managing limited resources in an environment of continuous operations.

Three pools of forces are outlined in figure 1: RESET/Train pool, the Ready pool, and the Available pool. The 2008 Army Strategy re-named these pools the "Reset," "Train/Ready," and "Available" pools and this thesis will utilize this 2008 naming convention. Units enter the Reset pool at the completion of their time spent in the

Available pool, where they either deployed to an operation or were fully prepared and available to deploy, but did not. They then move into the Train/Ready pool where they begin to conduct mission preparation and training before moving into the Available pool. Within this pool, the unit will either deploy to conduct an assigned mission or serve on standby as a rapidly deployable contingency force. These pools are linked and can be thought of as an unbroken circle. For example, a unit in the Reset pool, just left the Available pool, and will move quickly into the Train/Ready pool.

The astute observer will ask what exactly determines when a unit exits one pool and enters the next pool? The only clear distinction appears that if a unit is deployed, it is in the Available pool, and if it is redeploying, it is entering the Reset pool. But it remains unclear what requirements must be met to move from reset to train and what must be done to move from train to available. The applicable Army regulation on unit reporting states, “emerging ARFORGEN training and readiness strategies will establish training and readiness goals and objectives for Army units that are linked to proficiency levels in the unit” (Department of the Army 2006c, 141). Obviously, training and readiness strategies are still under development. Although these problems may have been solved by the Army staff, the important thing to note is that the concept of cyclical readiness is relatively flexible and dynamic. In other words, conditions within the unit determine when it exits one pool and enters another. While these conditions are relatively fixed, the time in each pool is not, thereby providing flexibility to the system. Additionally, the ability to allocate resources to a particular unit, depending on the need for that unit, makes the system dynamic.

Within the ARFORGEN cycle, each unit is designated a Ready Expeditionary Force, Contingency Expeditionary Force, or Deployment Expeditionary Force. These designations can transcend the particular pool that the unit is in at any particular moment (see figure 1). For example, a unit may exit the Reset pool with a mission already assigned and a deployment date set for Afghanistan--this unit is designated a Deployment Expeditionary Force. In the case of Afghanistan this unit can then train to the specific and unique tasks that it must be able to accomplish during its deployment. It may train on mountain warfare techniques, on helicopter operations, and on counter-insurgency techniques because these are the types of missions it can expect to do in Afghanistan. However, if the unit does not have a specified mission, it will be designated as a Ready Expeditionary Force. During its time in this category, it will train to general standards expected of its particular type of unit. For example, units can train to general standards of offensive, defensive, and stability and civil support operations as outlined in Field Manual 3.0, *Operations*. They will not know specifically where they will be deployed (if deployed at all), nor what they will be doing. When they enter the Available pool, a Ready Expeditionary Force unit will be re-designated a Contingency Expeditionary Force unit because it is now prepared to deploy in support of contingency operations. However, once the unit is assigned to a deployment, it will be re-designated again as a Deployment Expeditionary Force unit because it has a specific area and task it knows it must do.

#### ARFORGEN Target Ratios; Active and Reserve

The Army has announced deployment--known as Boots on Ground (BOG)--and dwell--time spent at home--goals for ARFORGEN. These standards are typically expressed in a ratio format. For example, a goal of a one year deployment followed by



two years at home would be expressed as 1:2. This is known as a BOG:Dwell ratio. As outlined in *The Army Strategy* dated August 22, 2008, “Currently, the Army is deploying at a 1:1 Boots-on-the Ground (BOG):Dwell ratio, an operational tempo far in excess of the 1:3 deployment planning goal (9 months BOG) for the ARFORGEN process” (Department of the Army 2008d, 21). This statement appears to set the bounds for ARFORGEN, that at its current compressed condition, the model is operating at a 1:1 BOG:Dwell ratio, while at its designed planning goal it will operate at a 1:3 BOG:Dwell ratio. Additionally, there is an intermediate goal outlined in *The Army Strategy*, describing “sustainable surge conditions for the Active Component (at 1:2)” (Department of the Army 2008d, 10). Deciphering “sustainable surge” requires digging deeper. The 2007 *Army Posture Statement* indicated that active units who deploy for a year, return home for a year, then redeploy, are creating unsustainable levels of stress on the force (Department of the Army 2007, A-4). This point was reiterated in the 2008 *Army Strategy* which states that the “demand for forces exceeds the sustainable supply” and further, “the tempo of deployments for our Soldiers and Families is unsustainable” (Department of the Army 2008d, 7). Taken together then, today’s tempo of 1:1 is unsustainable. The “surge” in “sustainable surge” relates directly to the 2006 *QDR* which categorized the current level of operations in Iraq and Afghanistan as a surge condition (see table 2). In summary, the Army set the goal of a 1:2 BOG:dwell ratio as a sustainable surge while prevailing in the War on Terror. Finally, the Army outlined a long-term goal ratio as well as deployment lengths, “The continued interim goal of the Army is a deployment-to-dwell ratio of 1:2, (for example, 12 months deployed with 24 months dwell; 9 months deployed with 18 months dwell) with a long-term sustainable

goal of 1:3 (for example, 9 months deployed with 27 months dwell)” (Army.com 2008).

Table 2 below is a graphical depiction of the evidence gathered. It links, in a single source, the *QDR* guidance, language from Army documents, and the goal ratios outlined within ARFORGEN.

Table 2. Army BOG:Dwell Goals		
<i>2006 QDR Guidance</i>	<i>Army Language</i>	<i>ARFORGEN Goals</i>
<i>Steady-State: Defend the Homeland</i>	<i>Long-term goal</i>	<i>1:3 (9months deployed, 27 months dwell)</i>
<i>Surge: Prevail in the War on Terror</i>	<i>Sustainable Surge</i>	<i>1:2(12 months deployed, 24 months dwell)</i>
<i>Surge: Conduct and Win Conventional Campaigns</i>	<i>Current Demand</i>	<i>&lt;1:2 (adjusted as required)</i>

Source: Table created by Author

The term “sustainable surge” is an important part of this thesis and requires some additional parsing. The term “surge” indicates a time span of limited duration. For example, the surge of forces to Iraq in the spring of 2007 lasted a little over a year. However, it is the temporal nature of the word surge that is misleading. Surge in sustainable surge is referring to the ability to increase the amount of forces to meet surge requirements as outlined in the 2006 *QDR*. Therefore, surge relates to the amount of forces and not to time. The term sustainable surge means the Army’s ability to meet surge military requirements, as defined in the *QDR*, sustainably for an indefinite time.

The goals outlined above align with recent comments by senior Army leaders. Statements by the Chief of Staff of the Army, General George Casey, indicate that he too seeks to move from an unsustainable 1:1 to a sustainable 1:2, “During a series of three roundtable discussions . . . he said dwell time--the amount of time a Soldier or unit

remains at home station between deployments--will grow from 12 months to 24 over the next three years” (Melancon 2008). Clearly, the Army wishes to portray the current BOG:Dwell ratio of 1:1 as unsustainable, that a 1:2 BOG:Dwell ratio is sustainable, and that a 1:3 ratio is the desired long-term balance.

### Reserve Component in ARFORGEN

The reserve component, the United States Army Reserve and the Army National Guard, are an important component of the Army’s model. The *2008 Army Strategy* described their continued integration in the future as follows:

The demands of the future security environment indicate that the Army will rely heavily on its RC [Reserve Component] for the foreseeable future. This continued reliance on the RC necessitates the transition of the Army National Guard and Army Reserve to an operational force that can provide predictable and assured recurring access to capabilities and capacities in support of operational and institutional requirements. (Department of the Army 2008d, 17)

Because ARFORGEN is a holistic model of both active component forces and reserve component forces, it is necessary to evaluate how the reserve component fits into the model. Just like the active component, the reserves have an established rotation goal of 1:5 (Department of the Army 2008d, 10). Additionally, the Secretary of Defense, in a January 19, 2007 Memorandum entitled “Utilization of the Total Force” defined “the planning objective for involuntary mobilization of Guard/Reserve units will remain a one year mobilized to five years demobilized ratio” (Defense Science Board 2007, 39). This document notes that some selected units will be remobilized sooner than this standard but that these exceptions are temporary, indicating that unlike the different target ratios of the active component in ARFORGEN there would only be one target ratio for the reserve component.

One challenge associated with reserve component mobilizations not present within the active component is the amount of time that a unit is available for deployment. According to the 2008 *Army Posture Statement*, “per January 2007 direction from the Secretary of Defense reserve component unit mobilizations are now limited to 400-day periods, including a 30-day postmobilization leave” (Department of the Army 2008c, 21). That is, reserve component units that are mobilized for deployments can only be mobilized for a maximum of 400 days, which include thirty days of postmobilization leave upon the completion of their deployment. Therefore, a unit that is mobilized to deploy only has 370 days of usable time during its mobilization, but this time too is reduced because of required training. Currently, “the goal for postmobilization training time for a brigade size organization is approximately 60 days” (Department of the Army 2008c, 20). So, in a best case scenario, a reserve component unit can actually deploy for only 310 days, or, approximately ten months (400 minus 30 (postmobilization leave) minus 60 (postmobilization training) equals 310), as compared to active component units who deploy for a full 365 days. This difference in deployment time is important to note because a reserve unit cannot “replace” an active component unit in a rotation, thereby reducing the BOG:Dwell of the active component unit. In fact, ARFORGEN, because it is a holistic active and reserve component model, does not “replace” active units with reserve units, but rather augments the total number of units available with reserve units.

Figure 2 below depicts the ARFORGEN cycle at the target ratios of 1:2 for the active component and 1:5 for the reserve component. This chart demonstrates these ratios for a force of forty-eight active component BCTs and twenty-eight reserve component BCTs. This force structure is representative of the Army’s planned force

structure in 2013 and does not represent today's current force (which is smaller). As stated in the Army Strategy, "the Grow the Army objective end strength provides 20 brigade combat teams on a sustainable basis" (Department of the Army 2008d, 10). This chart reflects how those twenty brigade combat teams are generated by a 1:2 active component target ratio and a 1:5 reserve component target ratio. It is important to note that the reserve component BCTs do not act as a substitute for active component BCTs, rather they augment the entire system. Said another way, the reserve component is a constant part of the ARFORGEN model and are not mobilized occasionally to assist the active component, they are constantly being mobilized and deployed as members of the available pool regardless of the ratio at which the active component is operating (1:3, 1:2, or 1:1).

The Available pool of this chart depicts sixteen active component brigades (depicted as "AC BCTs") and five reserve component brigades (depicted as "RC BCTs"), which total twenty-one. But, recall that the reserve component brigades deploy for ten months which is why it takes five reserve brigades to cover a requirement of four brigades on the ground.

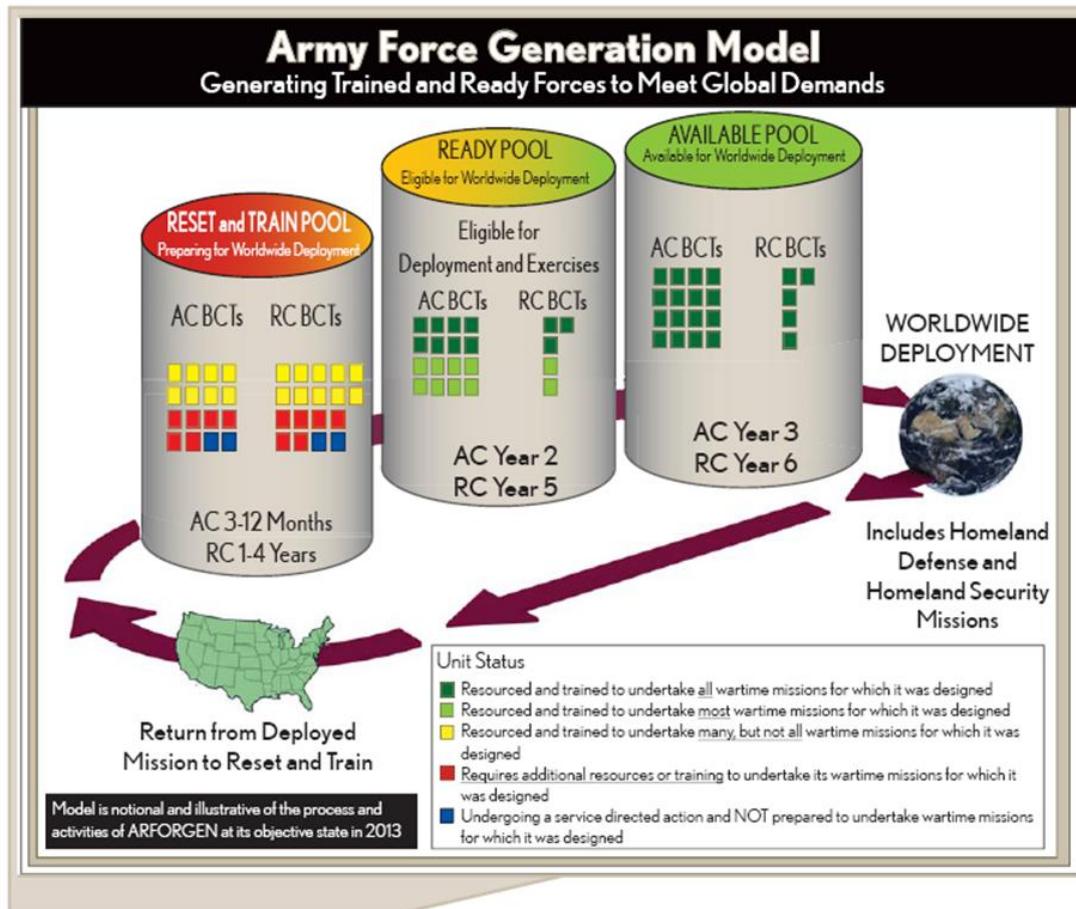


Figure 2. Army Force Generation Model

Source: Department of the Army, 2007 *Army Posture Statement* (Washington, DC: Government Printing Office, 2007), A-3.

### Calculating a BOG:Dwell Ratio

Exploring in detail the dynamics of ARFORGEN and the importance and effects of the BOG:Dwell ratios that it espouses requires a thorough understanding of the nuances in calculating a BOG:Dwell ratio. The ratio is a demonstration of the time that a unit spends deployed (BOG) to the time that a unit spends at home (Dwell). In order for a unit to have a BOG:Dwell ratio, it must have already completed an entire cycle of deployment and dwell. In other words, a unit that is about to deploy for the first time has

no BOG:Dwell ratio. In the same sense, a unit that just re-deployed, and is in a period of dwell, also has no BOG:Dwell ratio. Only the unit that has deployed, completed its dwell, and deployed for a second time, has a BOG:Dwell ratio. The figure below should help to clarify this definition.

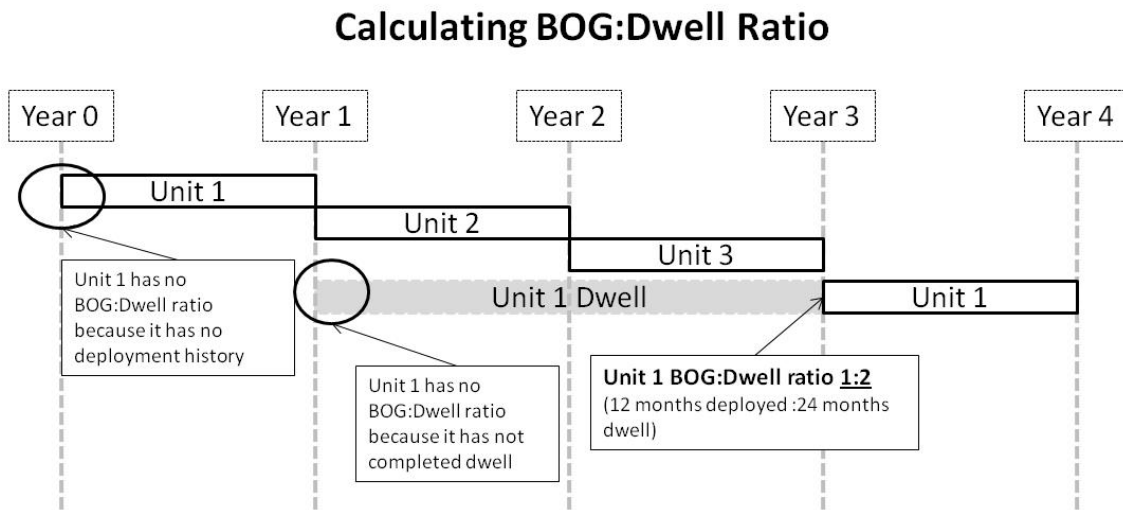


Figure 3. Calculating BOG:Dwell Ratio

Source: Created by author

As demonstrated in the example above, a unit leaving on a first deployment has no BOG:Dwell ratio for it has neither any BOG nor Dwell time. Only when the unit deploys for a second time does it acquire a BOG:Dwell ratio. Unit 1, for example, does not acquire a BOG:Dwell ratio until 3 years after its initial deployment. It is possible to forecast ratios of units scheduled to deploy, but the dynamic nature of scheduling precludes firm ratios until the unit actually deploys.

### Relief-in-Place and Transition-of-Authority

The concept of relief-in-place and transition-of-authority is extremely important to understanding of the ARFORGEN model and was summed up quickly by Vice Chief of Staff of the Army General Peter Chiarelli when he stated:

ARFORGEN is not unlike an aircraft carrier, Chiarelli said. To replace one carrier with another in the Persian Gulf essentially means two units are doing the job of one for about a 40-day period. (Roosevelt 2009)

Not unlike aircraft carriers, when an Army unit deploys to a combat zone as part of a rotation it spends weeks receiving and organizing all of its personnel and equipment. Additionally, it spends considerable time with the unit already there conducting orientation activities, familiarizing itself with the area, and gathering lessons learned. The experience of the 1st Brigade of the 4th infantry division is typical. The units of the brigade, “pitched their tents at Camp Buehring, Kuwait, during the month of March, in preparation for their 15-month rotation” (Hodge 2008). The purpose of this encampment was to conduct training on: rules of engagement, Humvee egress, Mine Resistant and Ambush Protected vehicles, and medical treatment--all before moving up to Baghdad where the unit they were relieving was stationed. This significant amount of time, where two units are deployed simultaneously, one in Kuwait training while the other awaits relief in Baghdad--all to fill only one requirement--affects the design of any force rotation model.

The time that two units spend simultaneously deployed for a single requirement, while conducting relief-in-place and transition-of-authority (RIPTOA) activities, is RIPTOA overlap. RIPTOA overlap does not have a fixed doctrinal timeline, and is dependent on many factors including transportation of personnel and equipment,



integration into the area of operations, training requirements, and the complexity of ongoing operations which it must assume. Simple battlefield friction may be another source of overlap when units replace one another. For example, the transportation assets required to move the departing unit back to its home station may not be available for several days, effectively leaving both units deployed over the same time period. A significant battle or incident may occur at the exact moment that units are conducting their transition requiring both units to remain until the situation stabilizes. Regardless of the specific challenge, military planners must include an overlap factor when planning for the rotation of units in a theater. The significance of this overlap, whether caused strictly by relief operations or friction on the battlefield, is profound.

The magnitude of the effect that RIPTOA overlap incurs is a factor of the length of the deployment and the length of dwell of the incoming units. For example, if units require forty days of overlap in order to effectively complete the process (as suggested by General Chiarelli), 11 percent of a twelve month deployment would be overlap ( $40 \text{ days} / 365 \text{ days} = \sim 11 \text{ percent}$ ), 9 percent of a fifteen month deployment, and 22 percent of a six month deployment. This is only half of the picture. The impact of these overlap times is dependent on the length of dwell of the incoming unit. For example, if a unit has surplus dwell time, then it can easily absorb the RIPTOA overlap and still meet its goal ratio. However, under conditions of high demand for units, like Iraq and Afghanistan today, where units do not build surplus dwell, maintaining goal ratios is exceedingly difficult. Understanding the effects of RIPTOA overlap within the ARFORGEN process is an important step in judging whether target ratios are appropriate.

## Summary

This chapter examined the requirements placed upon the Army in the *Quadrennial Defense Review* of 2001 and 2006 and the Army's response to these requirements in the development of the Army Force Generation model. The development and understanding of target ratios was discussed as was the inclusion of the reserve component in the holistic ARFORGEN process. Finally, a discussion was made about the concept of BOG:Dwell and its proper calculation, and of RIPTOA and its potential effects on the Army's model. The next chapter will examine in detail the actual stress placed upon the Army since 2001 through a detailed analysis of Brigade Combat Team deployments. This will be followed by an examination of the Army's ability to meet these challenges through recruiting and retention and other indicators of the health of the Army.

## CHAPTER 3

### MEASURING STRESS ON THE ARMY

#### Methodology: The Limits of Analyzing Seven Years of Actual Deployment Data

In order to understand what is actually happening to the Army, it is important to analyze the deployment data for the force since 2001. The best way to judge deployment stress on the Army is to examine individual personnel deployment data; on individual soldiers throughout the Army--often referred to as personnel tempo. This information allows one to analyze stress on an individual soldier level, increases the fidelity of the analysis, and prevents the masking effect of soldiers who move in and out of units. However, this data is difficult to gather and analyze because, in the words of the Government Accountability Office, the Army does not have quality controls in place to ensure accuracy and completeness of personnel tempo data (Government Accountability Office 2007, 5). But, creating a database of BOG:Dwell ratios of deploying units and analyzing seven years of deployment data allows for an adequate comparison with other statistics about the health of the force. Creating a thorough database of *all* the units in the Army inventory is an extremely daunting, if not impossible, task. The deployment of Brigade Combat Teams (BCTs), the major fighting element within the Army, provides an excellent measure of the stress on BCTs and serves as an indicator of the stress on other Army units. Comparison of the annual stress on the Army with indicators of the health of the force (recruitment, retention, and suicides) will act as a check on ARFORGEN assumptions about target ratios.

## Brigade Combat Teams

Analyzing BCTs, and not other unit types, is fraught with challenges. In fact, measuring them is complicated by changes in terminology and design, unit moves, and the creation of new units and the re-naming (reflagging) of others. Important to note is that the terminology itself has changed since 2001. In 2001, there were no BCTs in the Army inventory of units, only combat brigades, unable to operate independently and reliant on their parent division from which they drew most of their support. When these combat brigades were augmented to operate independently, they were called Brigade Combat Teams, but a Brigade Combat Team did not exist by itself in the Army inventory. Beginning in 2002, the Army began to build “Units of Action,” as part of its inventory of units, which were designed to operate independently of their divisions. As the concept matured, BCTs evolved as the term of choice to describe combat brigades, but it still means something different from a brigade--a BCT can operate independently. This analysis only uses the term BCTs, which refers to both a combat brigade that cannot operate independently without augmentation, and a transformed Brigade Combat Team which is able to operate independently without augmentation.

Complicating this analysis further is the fact that the Army stood up new BCTs from scratch, transformed others from brigades into BCTs, and “reflagged” several with the name of a former unit--the people and equipment remain the same, only the name changed. In order to simplify the analysis, this thesis will focus on BOG:Dwell ratios. This will eliminate problems with newly created units because they have no ratio. The focus on ratios also eliminates concerns of transformed and reflagged BCTs because their transformation and reflagging, which occurs during dwell, is included in the ratio. This

thesis identified several instances of the reflagging of units and will refer to the unit by its previous and current designation (for example, 172nd now 1/25).

While there are certainly unit types within the Army that have deployed more frequently than BCTs (perhaps intelligence, military police, or special forces units which are in high demand during counterinsurgency operations), there are certainly units that have deployed less frequently (perhaps types of air defense, artillery units, or chemical warfare units that are not as useful in a counterinsurgency). However, these other units, known as enablers, remain problematic for the Army. According to General Peter Chiarelli, the Vice Chief of Staff of the Army, “everybody concentrates on combat brigades, but the enablers are what keep me awake at night” (Roosevelt 2009). But, because they serve as the foundation around which support units are added, BCTs serve not only as a good measure of the stress on these units in particular, but can be extrapolated as a measure of stress on the Army in general.

#### Sources and Data Inconsistencies

The majority of the deployment data for this analysis was derived from two related sources. The September 24, 2007 and the February 9, 2009 editions of the *Army Times* contained articles outlining historical deployments of Army BCTs (Tan 2007; Tan 2009). They detailed deployment data on every BCT in the Army since 2001. In order to check the veracity of the information, multiple open-source resources were used to cross reference selected unit deployment information (including official Army histories, *On Point*, and *On Point II*). Finally, the incorporation of major deployment policy changes were used to ensure accuracy of deployment information since September 2007. (See Appendix B)

However, regardless of the tools utilized in the development of the BOG:Dwell analysis of BCTs, the actual deployment data of units, which is controlled by the Army, remains classified. Because of this fact, it is likely that there are errors in this analysis. But, because the data covers a period of seven years, and because the deployments of brigade sized units overseas are generally reported by the press, and because there are so many points of data from which to draw a general trend, this analysis serves as a good indicator of the relative BOG:Dwell ratios of BCTs and, subsequently is a good general measure of the stress on the Army as a whole.

There are some inconsistencies in the data which must be explained. First, between 2001 and 2004, only six BCTs deployed more than once, out of a total of thirty-five BCT deployments. Because of this low number of repeat deployers the data for these years can largely be ignored. Second, there is a large disparity between the total number of deployments in 2004 with eleven, when compared to 2003 with twenty-one and 2005 with nineteen. This disparity exists for three reasons: the 2003 number is high because it marks the initial invasion into Iraq, in 2004 the Army mobilized National Guard Brigades for use in Iraq and Afghanistan, and the eighteen deployments in 2005 is skewed because of the effect of RIPTOA overlap. The first reason for the disparity of 2004 numbers is relatively obvious. The initial ground invasion of Iraq occurred in 2003, which required a larger number of combat forces.

The second reason for the disparity was the use of Army National Guard Brigades in 2004. According to *On Point II*, there were five Army National Guard Brigades deployed in 2004: 30th Infantry Brigade (North Carolina Army National Guard), 256th Brigade Combat Team (Louisiana Army National Guard), 39th Infantry Brigade

(Arkansas Army National Guard), 81st Armored Brigade (Washington Army National Guard), and the 197th Field Artillery Brigade (New Hampshire Army National Guard). The last two brigades listed, including the Field Artillery Brigade, performed theater security in the north and south respectively (Wright and Reese 2008, 619). This brings the total number of BCTs deployed in 2004 to sixteen.

The eighteen deployments in 2005 is high because of RIPTOA overlap and the pull of forces to the left that it creates. Two of the eighteen BCTs that deployed in 2005 deployed in December, indicating that they were replacing two of the five units that deployed in January of 2005. Because units that deployed in January were replaced in December, the effect is that two requirements generated four deployments in 2005, thus artificially increasing the number of deployments in 2005 (this is not true of 2007 which is explained by the addition of five BCTs for the surge).

#### Compiling Deployment Data

BCT deployment data is presented in a spreadsheet (Appendix A) that details the deployment information, by month, of individual BCTs since December 2001. This spreadsheet was the source for the development of figure 4 (below) which presents all of the BCT deployments since 2001. The first row of BCTs are those that deployed for the first time, and for this reason do not have associated BOG:Dwell ratios. The second row deployed on their second, third, fourth, etc. deployment and have both BOG and Dwell time, in months, annotated after their unit designation. As opposed to rotation names like OIF 1, or 05-07, calendar years were chosen to partition the data because they are easily understood and remain constant in duration over time.

	2001	2002	2003	2004	2005	2006	2007	2008
1 <sup>st</sup> Time Deployers	2/10	2/3 3/3 3/82 3/101	1/3 2/101 1/82 173 2/82 2/1 AD 1/1 ID 3/2 1/4 2CR-4/2 2/4 3/4 3 ACR 1/1 AD 1/101 1/10 3/1 AD-2/1 ID	2/1 ID-172 3/1 ID 1/1 CD 2/1 CD 3/1 CD 2/2-4/4 1/25-2CR 2/25 3/25	4/3 4/4-4/1 CD 4/101 172-1/25	4/1 CD – 4/1 AD 3/10 4/10 4/25	4/1 ID 4/82	
Multiple-Deployers = (EOG:Dwell)  ARNG Units			2/10 = (5:12) 3/3 = (7:3) 3/82 = (8:6) 3/101 = (7:7)	2/10 = (8:5) 1/82 = (8:4)  30 <sup>th</sup> (NC) 256 <sup>th</sup> (CA) 39 <sup>th</sup> (AK) 81 <sup>st</sup> (WA) 197 <sup>th</sup> (NH)	2/1 AD = (15:15) 3/1 AD-2/1 ID = (12:8) 1/3 = (8:16) 2/3 = (11:16) 3/3 = (7:17) 1/4 = (12:20) 2/4 = (12:19) 3/4 = (12:18) 1/10 = (11:14) 1/82 = (4:12) 1/101 = (11:18) 2/101 = (11:18) 3/101 = (11:18) 3 ACR = (13:11) 173 = (12:12)	2/1 ID-172 = (12:15) 1/1 AD = (14:17) 1/1 CD = (12:18) 2/1 CD = (13:18) 3/1 CD = (12:17) 2/2-4/4 = (12:13) 3/2 = (12:18) 2/10 = (12:13) 3/25 = (12:15) 3/82 = (10:26)	2CR-4/2 = (15:32) 1/3 = (12:12) 2/3 = (12:15) 3/3 = (12:13) 4/3 = (12:19) 3/4 = (12:12) 1/10 = (12:12) 4/10 = (4:15) 1/82 = (12:12) 2/25 = (13:32) 2/82 = (12:34) 1/101 = (12:12) 2/101 = (12:12) 3/101 = (12:12) 1/25-2CR = (12:22) 3 ACR = (11:20) 173 = (11:14)	2/1 ID-172 = (15:12) 3/1 ID = (13:39) 2/1 AD = (12:15) 3/1 AD-2/1 ID = (12:25) 3/1 CD = (14:12) 1/4 = (12:14) 2/4 = (12:21) 4/4-4/1 CD = (12:17) 3/10 = (15:17) 172-1/25 = (16:20) 3/25 = (15:12) 3/82 = (15:12) 4/101 = (12:16)
Notes: Unit Designations: 2/10 means 2 <sup>nd</sup> Brigade, 10 <sup>th</sup> Mountain Division; 1/1 AD means 1 <sup>st</sup> Brigade, 1 <sup>st</sup> Armored Division; etc. 1/25-2CR means formerly 1 <sup>st</sup> Brigade, 25 <sup>th</sup> Infantry Division, now reflagged to 2 <sup>nd</sup> Cavalry Regiment ID = Infantry Division CD = Cavalry Division AD = Armored Division ACR = Armored Cavalry Regiment								

Figure 4. Unit Deployments

Source: Created by author

The months are derived from the charts in Appendix A by counting the total number of months the unit was deployed and the number of months that the unit was in dwell. When there was a discrepancy between the number of months the unit was deployed and the deployment and re-deployment months, the number of months annotated in the *Army Times* articles was used as the deployment time. For example, if a unit deployed in February and returned the following February, then thirteen total months would be blocked out, but, it was annotated as only a twelve month deployment. This error occurs because the data is in months and not days. The opposite effect occurred when counting Dwell in 2007 and 2008. In some instances, there were only eleven months of dwell depicted on the chart. However, on April 4, 2007, Secretary of Defense Robert Gates announced a new policy stating that units “will return home to home



stations for not less than 12 months” (Department of Defense 2007). In these cases, twelve months of Dwell was applied for each BCT. The combination of these two factors may induce a slight error in the overall BOG:Dwell ratio, but without deployment information in days, this error cannot be overcome.

#### BOG:Dwell of Army BCTs: 2001-2008

The data in figure 5 (below) demonstrates that the Army operated at a BOG:Dwell ratio of less than 1:2 since 2001, and certainly for the years 2005, 2006, 2007, and 2008. These final four years of data are the best years to analyze because of the small number of first time deployers in each of these years, the large number of multiple deployers, and the fact that over the course of four years the entire inventory of Army BCTs completed a rotation.

	2003	2004	2005	2006	2007	2008
Multiple-Deployers = (BOG:Dwell)	2/10 = (1:2.4) 3/3 = (1:0.43) 3/82 = (1:0.75) 3/101 = (1:1)	2/10 = (1:0.63) 1/82 = (1:0.5)	2/1 AD = (1:1) 3/1 AD-2/1 ID = (1:0.67) 1/3 = (1:2) 2/3 = (1:1.45) 3/3 = (1:2.43) 1/4 = (1:1.67) 2/4 = (1:1.58) 3/4 = (1:1.5) 1/10 = (1:1.27) 1/82 = (1:3) 1/101 = (1:1.64) 2/101 = (1:1.64) 3/101 = (1:1.64) 3 ACR = (1:0.85) 173 = (1:1)	2/1 ID-172 = (1:1.25) 1/1 AD = (1:1.21) 1/1 CD = (1:1.5) 2/1 CD = (1:1.38) 3/1 CD = (1:1.42) 2/2-4/4 = (1:1.08) 3/2 = (1:1.5) 2/10 = (1:1.08) 3/25 = (1:1.25) 3/82 = (1:2.6)	2CR-4/2 = (1:2.13) 1/3 = (1:1) 2/3 = (1:1.25) 3/3 = (1:1.08) 4/3 = (1:1.58) 3/4 = (1:1) 1/10 = (1:1) 4/10 = (1:3.75) 1/82 = (1:1) 2/25 = (1:2.46) 2/82 = (1:2.83) 1/101 = (1:1) 2/101 = (1:1) 3/101 = (1:1) 1/25 now 2CR = (1:1.83) 3 ACR = (1:1.82) 173 = (1:1.27)	2/1 ID-172 = (1:0.8) 3/1 ID = (1:3) 2/1 AD = (1:0.8) 3/1 AD-2/1 ID = (1:2.08) 3/1 CD = (1:0.9) 1/4 = (1:1.17) 2/4 = (1:1.75) 4/4-4/1 CD = (1:1.42) 3/10 = (1:1.13) 172-1/25 = (1:1.25) 3/25 = (1:0.8) 3/82 = (1:0.8) 4/101 = (1:1.33)
Average BOG:Dwell	1 : 1.15	1 : 0.57	1 : 1.56	1 : 1.43	1:1.59	1 : 1.33
<b>Notes:</b> <b>Unit Designations:</b> 2/10 means 2 <sup>nd</sup> Brigade, 10 <sup>th</sup> Mountain Division; 1/1 AD means 1 <sup>st</sup> Brigade, 1 <sup>st</sup> Armored Division; etc. 1/25-2CR means formerly 1 <sup>st</sup> Brigade, 25 <sup>th</sup> Infantry Division, now reflagged to 2 <sup>nd</sup> Cavalry Regiment ID = Infantry Division CD = Cavalry Division AD = Armored Division ACR = Armored Cavalry Regiment						

Figure 5. Unit BOG:Dwell and BOG:Dwell Averages by Year

Source: Created by author

There are three units in 2007 and one in 2008 that deployed with more than thirty months of Dwell--2CR now 4/2, 2/25, 2/82 and 3/1 ID. These units were likely reconfigured, transformed, or moved to a new base between deployments, as it seems unlikely the Army would allow a unit to accumulate so much time at home while others were deploying with only twelve months of dwell. When the outliers, units with more than thirty months of Dwell, are removed from the average, it becomes clear that the stress on the Army steadily increased over time (table 3).

Table 3. Dwell Averages by Year with and without Outliers						
	2003	2004	2005	2006	2007	2008
Average BOG:Dwell (with Outliers)	1 : 1.15	1 : 0.57	1 : 1.56	1 : 1.43	1 : 1.59	1 : 1.33
Average BOG:Dwell (without outliers)	1 : 1.15	1 : 0.57	1 : 1.56	1 : 1.43	1 : 1.40	1 : 1.19

*Source:* Created by author.

The fact that is most pertinent when discussing dwell goals is that for all of the years in this study, whether including or excluding outliers, the average remains below the sustainable ARFORGEN goal of 1:2. Over the course of a year or two, one could argue that a BOG:Dwell ratio less than 1:2 is unsustainable. But, the BOG:Dwell ratio for the Army, over the course of four years was below the 1:2 mark and steadily marching towards 1:1. It would seem reasonable that a BOG:Dwell ratio less than 1:2 is, in fact, sustainable. However, to strengthen this argument an examination of the health of the AVF for the years 2005-2008 is required. Analysis of recruitment and retention statistics will strengthen the assertion that a BOG:Dwell ratio below 1:2 is a sustainable rotation model for the Army.

#### The All Volunteer Force: Recruitment and Retention

Observers note that, “Effective recruiting and retention is extraordinarily important, indeed essential, for sustaining the all-volunteer force” (Bicksler, Gilroy, and Warner 2004, 55). In 2006 another expert noted that, “So far the all-volunteer force has proven to be very resilient, but the all-volunteer force does not lend itself to guarantees” (Rostker 2006). In fact, it must be constantly monitored to ensure that it is meeting the essential goals of effective recruiting and retention. An analysis of the past several years

should reveal whether or not the 2006 assessment holds true today in light of the increasing stress on the AVF demonstrated in the previous section.

While it was demonstrated that the Army sustained a BOG:Dwell ratio below 1:2 for the past four years, it remains to be proven that this amount of stress is sustainable. To determine the sustainability of this type of stress, the health of the AVF must be assessed. The most basic measurement is to determine whether or not the Army recruited and retained enough soldiers, and then to determine whether other health indicators of the force, such as quality of recruits and suicide rates, also indicate sustainability.

Table 4 below contains recruitment information about the active component Army from 2004 through 2008.

Table 4. Accession Data for Active Component Enlisted Personnel			
	Goal	Achieved	Percent of Goal
2004	77,000	77,587	101%
2005	80,000	73,255	91.6%
2006	80,000	80,617	100.7%
2007	80,000	80,410	100.5%
2008	80,000	80,517	100.6%

*Source:* United States Army Recruiting Command Public Affairs Office, March 17, 2009, e-mail to author (see appendix C).

With the exception of 2005, the Army consistently achieved its recruitment goal. 2005 was an indicator to the Army that recruitment was an issue and had to be addressed. However, since 2006, which was the second year of quality BOG:Dwell data, the Army consistently exceeded its recruitment goal. Achievement of the recruitment goal for

2006, 2007, and 2008, while stress was demonstrably increasing, indicates that the Army continued to fully man and recruit enough people from the “marketplace.” Retention is generally viewed as a backstop to poor recruiting, and retention was also excellent.

Figure 6 below demonstrates the Army exceeded its retention goal every year since 2000. In fact, there appears to be an upward trend. It is clear that the Army has been able to maintain an enlisted force since 2000 through recruitment and retention. Officers, on the other hand, do have a projected shortfall of roughly 3000 mid-grade officers until 2013 (Henning 2006).

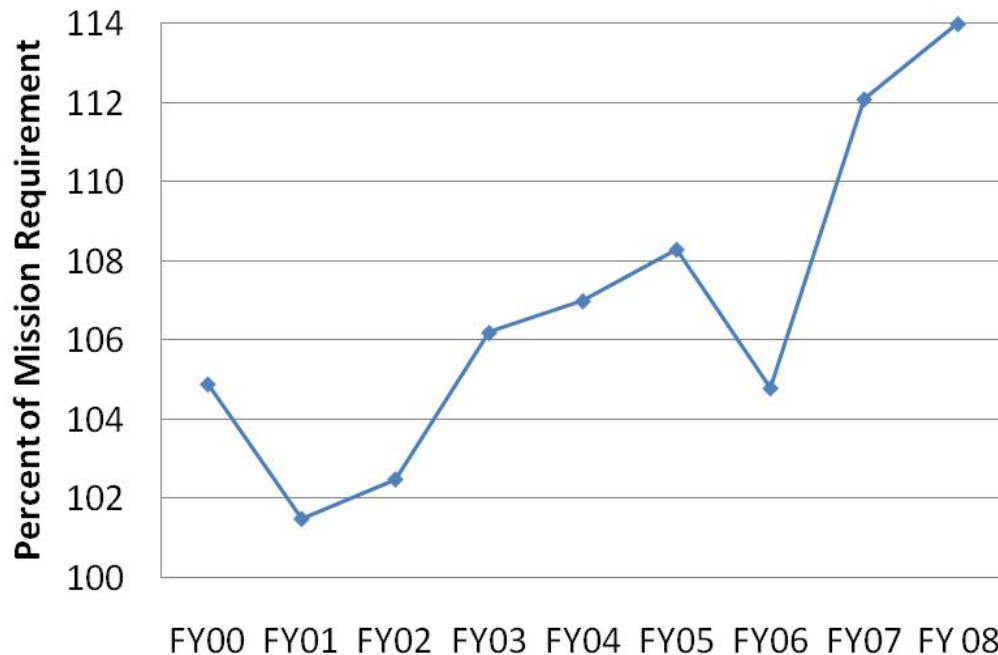


Figure 6. Active Army Historical Retention Data

*Source:* U.S. Army NCO Retention Fact Sheet as of May 25, 2007, <http://www.armyg1.army.mil/media.asp> (accessed March 19, 2009); CRS Report for Congress, *Recruiting and Retention*, February 7, 2008, Government Printing Office; and “Army Exceed Recruiting Goal for Fiscal Year 2008.” Army.mil, <http://www.army.mil/newsreleases/2008/10/10/13228-army-exceed-recruiting-goal-for-fiscal-year-2008/> (accessed 19 March 2008).

While a 2006 Congressional Research Service report noted that there would be a persistent shortfall of officers through 2013, the report concluded that “at this time, the high deployment tempo associated with Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) does not appear to be associated with these shortfalls” (Henning 2006). The report concluded that the shortfall of officers, mostly captains and majors, is due to a combination of reduced officer accessions in the 1990s and the increase in officer requirements caused by Army transformation. This observation is corroborated by the Army G-1, which in a fact sheet declares that, “Under accessions in the mid-1990s is one reason we are short officers today. Also, rapid increases in force

structure due to modularity and end strength increases since 2002 have increased officer requirements by 8,000, 58 percent of this growth is in the ranks of captain and major” (U.S. Army G-1 2007). In the same fact sheet, the Army G-1 states that it is confident that an implementation of strategies to access and retain officers will meet the manning needs of the Army by 2010 vice 2013.

Unlike the Army’s assessment, others are concerned that an officer shortfall poses a real threat to the service. In a December 2007 article subtitled “Why the best and brightest young officers are leaving”, Andrew Tilghman articulated the frustrations of many junior officers. Tilghman described the frustrations of those officers who were stymied by more traditional thinking superiors and was concerned, “how the exodus of the best and brightest will affect the Army’s long-term capacity to win wars, counter threats, and keep the peace” (Tilghman 2007). Dovetailing these concerns, a recent study conducted by Army Major George B. Brown III at the Army’s Command and General Staff College makes similar claims. In his report, Major Brown found that the percentage of majors leaving the service increased from 3.75 percent in 1998 to 6.48 percent today (Tyson 2008). Major Brown’s published thesis concludes that, “There is a critical shortage of US Army active duty officers.” He goes on to predict that, “a tipping point towards failure is approaching when the US Army does not have adequate officers to lead and staff mid-grade positions” (Brown 2008, 52). It is important to note that Major Brown acknowledged that the officer shortage was, “created as a direct result of massive military drawdown in the early-to-mid 1990s” and that, “beginning in 2004, the US Army increased the demand for active duty officers by 7,512 because of modifying the force structure” (Brown 2008, 6). Additionally, Major Brown’s conclusion relies on survey

data of officers who have stated they will retire immediately at twenty years--potentially exacerbating the current shortage. It appears that Major Brown's narrative covers familiar ground.

Certainly, a strong argument can be made that the fundamentals of officer retention have somehow changed, and that officer attrition is a serious concern. However, the Army counters that the rate of majors leaving the service "remains within historic norms" (Tyson 2008). In summary, officer shortfalls within the Army is a problem of the Army's own making, and the consensus is that deployment tempo is not a factor in the overall shortfall of captains and majors. This officer shortfall was recognized and is being addressed by the Army through incentive and accession programs.

In conclusion, analysis of Army enlisted and officer recruitment and retention information indicates that the manning of the AVF appears to be healthy, despite a BOG:Dwell ratio approaching 1:1 over the past several years. These recruitment and retention statistics demonstrate that the Army maintained a fully manned enlisted volunteer force, and recognized and is correcting an officer shortfall--a shortfall of its own creation. It would not be inappropriate to declare that manning the Army with volunteers is sustainable at a BOG:Dwell ratio of less than 1:2 for the long-term. However, it is important to dig deeper and examine several of the other health indicators of the Active component AVF. (While the reserve components, the U.S. Army Reserve and Army National Guard, also recruit and retain soldiers, this thesis remains focused on the health of the active component.)



Other Indicators of the Health of the Force:  
Quality of Recruits and Suicides

While it is true that the volunteer manning of the Army is sustainable, despite many years of continuous deployment, it is also true that other indicators of the health of the Army declined in recent years. Two of these indicators, the quality of recruits and suicide rates, provide quantitative information about the ability of the Army to meet its mission with a quality force, and its ability of to foster a healthy climate in which people desire to serve. For example, the quality of enlisted recruits, as measured by the percent of recruits with High School Diplomas has steadily decreased. Additionally, much has been made about reports that the suicide rate per 100,000 soldiers increased in 2006, 2007, and 2008. Recruit quality and suicide rates are the two quantitative indicators that the volunteer force may be at risk.

Army Recruit Quality

The services use two measures to define a high-quality recruit: test scores from the Armed Forces Qualification Test and high school graduation status (Bicksler, Gilroy, and Warner 2004, 90). The test assigns categories in six separate gradations, or categories (CATs): I, II, IIIA, IIIB, IV, and V. Each of these categories is associated with a percentile of test takers. For example, CAT V personnel are in the bottom 10 percent of all test takers, CAT IV fall between the bottom 10 percent and bottom 30 percent of test takers, while CAT I are in the top 93 percent to 99 percent of all test takers. Congress mandates that category V individuals are not eligible for service, and that no more than 20 percent of recruits can be drawn from CAT IV. This contrasts with DoD guidance which recommends that no more than 4 percent of recruits be drawn from CAT IV

(Bicksler, Gilroy, and Warner 2004, 91). The quality of the recruits, as tested by the Armed Forces Qualification Test in categories I-III A (above average scores), declined from 71 percent in 2004 to 61 percent in 2007 and 62 percent in 2008. The percentage of CAT IV recruits has grown from only 0.6 percent in 2004 to 3.9 percent in 2005, 3.8 percent in 2006, 3.97 percent in 2007 settling at 3.5 percent in 2008 (United States Army Recruiting Command, March 17, 2009, e-mail to author). (These and other statistics provided by Recruiting Command can be found in appendix C.)

The percentage of recruits who attained a high school diploma is important to the Army because unlike a General Educational Development assessment (GED), possession of a high school diploma correlates strongly with the likelihood that the individual will complete their first term of enlistment (Bicksler, Gilroy, and Warner 2004, 61).

Unfortunately, the Army saw its percentage of recruits who graduate from high school fall over the past several years. Beginning in 2004, the number of Army enlisted recruits with a high school diploma dropped from 92 percent in 2004, to 87 percent in 2005, to 81 percent in 2006, to 79 percent in 2007 settling on 83 percent in 2008 (United States Army Recruiting Command, March 17, 2009, e-mail to author). Even more alarming, prior to 2005 the last year that the Army had less than 90 percent of its recruits with a high school diploma was 1983 (Office of the Undersecretary of Defense for Personnel and Readiness 2004).

As a 2008 Congressional Research Service Recruiting and Retention report notes, “FY 2007 represents the fourth consecutive year of decline in one or both of the quality indicators” (Kapp and Henning 2008, 5). While clearly indicating a negative trend in the quality of recruits, it is important to note that according to the Army G-1 “100% of our

recruits are High School graduates or equivalents, i.e. college or GED” (U.S. Army G-1 2007). In order to ensure this level of education among its recruits, the Army recently opened a school where potential recruits lacking a high school diploma or GED could attain a GED, at the expense of a minimum enlistment in the Army (Cavallaro 2008). By taking this step, the Army remains intent on only accepting graduates--diplomas or GED--into the force and to gain greater access to civilians who wish to join but dropped out of High School. In response to the indicators of a quality problem with Army recruits, the Army G-1 argues:

The incorrect conclusion that some have made is that test scores necessarily equate to “quality”--clearly untrue. We have found that test taking ability does have some correlation to trainability, but it does not measure loyalty, duty, respect, selfless service, honor, integrity, or personal courage; and it doesn’t measure their level of determination and perseverance (risk of attrition). The Army builds its leaders from America’s young people. They grow, learn and adapt to become tomorrow’s leaders. (U.S. Army G-1 2007)

This quote indicates that the Army as an organization does not see a significant threat to its quality over the past several years. In fact, it almost appears to take the lower quality of recruits as a challenge to “build leaders from America’s young people” by making them soldiers. On balance, while it is clear that the indicators of quality of Army recruits have reduced since 2004, the Army only recruits high school graduates, maintains the DoD requirement that no more than 4 percent of recruits be CAT IV, and even appears to relish the challenge--the volunteer Army does not appear threatened by a lower quality of recruit. That being said, there are other, perhaps more dramatic, challenges the Army faces.

## The Army Suicide Rate

Reading the newspaper or watching the news over the past several years, even the casual observer is aware that the suicide rate among soldiers is on the rise. Headlines like “U.S. Army Suicide Rate Continues to Rise”, “Army Suicides Highest in 26 Years”, and most worryingly, this December 2008 headline from CNN.com, “Army Suicide Rate Could Top Nation’s this Year.” These headlines are supported by Army reporting in its 2006 and 2007 Army Suicide Event Reports which detail Army statistics about suicide events for each calendar year. The immediate conclusion appears to be that there is a serious and increasing problem with suicides within the Army and that these are an indicator of the stress on the Army due to constant deployments to Afghanistan and Iraq. However, this leap may be premature as there are many challenges with accounting and comparing suicide statistics.

Accounting for suicides within a population is a very difficult thing to do precisely. An April 2006 article in *Suicide and Life-Threatening Behavior* outlines four of these difficulties. First, suicides do not occur very often and small changes in the number, even in a large group, can result in wide fluctuations. Second, comparing differences in suicide rates between groups is difficult due to varying population characteristics and demographic distributions. Third, classification difficulties and bias of suicide as the cause of death--for example as an “accident,” “undetermined,” or “pending”--result in imprecise or inaccurate rates. And finally, reporting of suicides changes with time as there are often long delays in completing the manner of death investigation (Eaton et al. 2006, 183). The statistics produced in the Army’s suicide reports are not immune to these errors. More importantly, the article, which compared

military and civilian suicide data in the United States concluded, “that suicide rate fluctuations as large as 20-40% in any year may be attributed to random error” (Eaton et al. 2006, 182). The combination of the difficulties in accounting for suicides and an annual fluctuation of 20-40 percent would indicate that perhaps there is no serious increase in the number of suicides within the Army.

In fact, after the release of the Army’s 2006 suicide event report, there were questions raised as to the validity of the data. The rate of suicides reported by the Army per 100,000 soldiers was 12.4 in 2003, 10.8 in 2004, 12.8 in 2005 and jumped to 17.3 in 2006. Some commentators noted that “Part of the increase, however, may be due to improved data collection” (Levin 2007). The 2006 report did provide a table which compared Army and U.S. population suicide crude rates (rates per 100,000). However, the 2007 report did not and stated that, “suicide rates are not reported here in order to avoid confusion, since suicide rates change as pending cases are confirmed” (Army Behavioral Health Technology Office 2007, 9). Because of the difficulty of ascertaining quality data, described by both outside observers and indicated from the 2007 report, the challenges of accurate suicide data in the Army are large. Additionally, comparing these rates to the population at large is also difficult. This difficulty is compounded by the fact that the most recent data on civilian suicide rates is from 2005 (National Center for Health Statistics 2007). All of these challenges, when combined, make it exceedingly difficult to draw conclusions about the rate of Army suicides.

But, some general observations about the rate of suicides within the Army can be made. There does appear to be an upward trend within the Army since 2006. Better reporting is one factor, but after several years of increasing rates, within the new

reporting construct, the trend is clear. The reported results of the 2008 rate reinforce concern. The Army reported in January of 2009 that for the first time since tracking suicides began over thirty years ago, the rate for the Army exceeded the national rate for a similar demographic (Barnes and Chong 2009). Why do suicides remain such an important indicator within the Army? As observers have pointed out, “from a policy perspective, apparent spikes in suicide rates often lead to heightened concerns among Department of Defense (DoD) leadership, and occasionally prompt intense public scrutiny (e.g., suicides among U.S. soldiers deployed to Iraq)” (Eaton et al. 2006, 183).

There is no easy conclusion that can be drawn from reports of soldiers taking their own lives within the Army, but an emerging trend of rising rates, after three years of consistent data, is troubling. There was a sharp increase in the suicide rate beginning in 2006 which may have been due to better reporting measures, but the trend continued to rise in 2007 and 2008. There has been much in the press, congress, and DoD leadership about the increasing number of suicides within the Army, but this is likely due to the importance of suicide as an indicator of stress and its potential relationship to Iraq and Afghanistan. While correlations between the Army’s suicide rate and deployments to Iraq and Afghanistan do exist--the rate increased in the face of these deployments--it will likely take several more years of data and reflection to conclusively link the increased suicide rate with increased stress on the force. But it does appear now that a link exists. Despite the tragic trend of increasing suicides, there has not been a corresponding decrease in recruitment and retention which would indicate a force so unhealthy that personnel cease to volunteer. Therefore, while an increasing trend is tragic, it does not appear to affect the sustainment of the AVF.

### Conclusions about Health Indicators

Having examined recent statistics on recruitment and retention within the AVF, addressing officer shortfalls, examining quality of recruits, and examining suicide statistics, one must conclude that the AVF remains sustainable--even healthy. The Army not only maintained the force it had in 2001, but also recruited enough personnel to put it on a path to increase its size by 2011. The shortfall of officers within the force appears to be more a result of both the transformation of the Army and the increase in overall endstrength (both of which required more captains and majors) and not a result of the deployment tempo to Iraq and Afghanistan. Finally, the rate at which soldiers are taking their own lives is rising, and a serious concern for the Army, but as yet does not appear to impact the volunteer nature of the service. One can only conclude that these key indicators demonstrate that the Army remains a strong, viable, and volunteer force despite a BOG:Dwell ratio less than 1:2 and an increasing suicide trend.

### Other Measures of Stress On the Army

So far, this chapter analyzed the quality of recruits and the suicide rate as the two major determinants on the health of the Army because these measures indicate the quality of the force and the health of the environment in which people work. However, there are other indications of clear trends on the stress on the force which require mentioning--troop obesity and divorce rates are two. These two indicators may demonstrate some unhealthy conditions which could threaten the volunteer force.

On the front page of the February 10, 2009, *USA Today* newspaper, the headline read "Troop obesity doubles since 2003; Concerns about readiness, stress." Citing a January 2009 Pentagon study, the article then went on to conclude, in the first sentence,

that this is, “yet another example of stress and strains of continuing combat deployments,” and quotes the report as saying that, “stress and return from deployment were the most frequently cited reasons” (Zoroya 2009). This conclusion contradicts what is actually published in the Pentagon study. In fact, the quote citing “stress and return from deployment” is a reference to a previous study conducted in 2005 and is properly cited by a footnote in the 2009 study. Additionally, this conclusion does not match the editorial comments at the end of the 2009 study. According to the new study, the level of Army members who received an outpatient diagnosis of overweight grew from 2.1 percent in 2001 to 4.8 percent in 2008 (Oh 2009, 3). However, the editorial note at the end of the study states that “it would be surprising . . . if military members were not at risk from the general epidemic of obesity--to the extent they have unhealthy dietary habits and sedentary recreational activities” (Oh 2009, 6). Surprisingly, the editorial did not draw a correlation between the instances of obesity in the force with deployments or stress, even though there is a strong correlation to the timeframes of the wars in Iraq and Afghanistan. Rather, the report leads one in the direction of the strong correlation of obesity within the force with the epidemic of civilian obesity in general. It appears that the *USA Today* article may have made a step too far in its analysis and did not thoroughly consider footnotes or the editorial at the end of the 2009 study.

Another common indicator of stress on the military is the increasing divorce rate among military members. As recently as December 2008, a report stated that enlisted Soldiers and Marines had the highest divorce rate as at any time in the preceding sixteen years (Zoroya 2008). While these increases are undisputed, the conclusion that can be



drawn from divorce rates within the military is in dispute. A thorough academic study of military divorce rates, published by the RAND Corporation in 2007 concluded that:

First, the conventional wisdom about how deployments affect military marriage turns out to be wrong. Whereas media reports and military leaders themselves describe deployments as harming marriages, our analyses suggest, based on ten years of data from the entire population of the military, that deployments generally reduce risk of marital dissolution. Second, the assembled empirical research on military marriage has yet to address the crucial question of how military couples interact with each other and adapt to the stress of military service. The dearth of systematic research may help to explain the gap between what conventional wisdom predicts and what the data examined here have revealed. (Karney and Crown 2007, 162)

Some of the reasons for this conclusion help to explain its apparently counterintuitive nature. The study found that the rates of entering marriage and the rates of ending marriage tended to change in parallel over time and that these trends begin to change in 2001, prior to Afghanistan and Iraq. Additionally, the trends are comparable across services and components and that, in fact, the experience of deployment during marriage generally reduced the subsequent risk of experiencing marital dissolutions. Clearly, there is a strong indication here that what seems intuitive about the divorce rates in the military and operations in Iraq and Afghanistan may be wrong.

Evidence of additional stress to the Army and the rest of the military through rising rates of obesity and divorce seem to indicate stress associated with deployments to Iraq and Afghanistan. However, in both these instances, they may just reflect general trends in American society writ large and not indicate a causal relationship with combat deployments. Obviously, these are important indicators that should stay closely monitored by the military. But, it is fair to say that more research and time is required to conclude that there is a link between these two indicators and stress caused by deployment--specifically to Iraq and Afghanistan.

## Summary

This chapter began with a detailed examination of the stress on the Army since 2001 through a detailed examination of the deployment of Brigade Combat Teams. This examination determined that since 2005, the first year from which accurate conclusions about BOG:Dwell can be drawn, the Army operated at much less than a 1:2 ratio and approached a 1:1 ratio. A comparison was then made, over the same timeframe, to Army recruitment and retention statistics which concluded the AVF, with the exception of 2005, met all recruitment and retention targets. However, these recruitment and retention statistics do not demonstrate some of the internal stresses occurring within the Army, specifically the quality of recruits and the number of suicides. These two indicators, while trending negatively, so far do not pose a threat to the health of the volunteer force, and the conclusion was made that the AVF is sustainable--even healthy. Finally, an examination was made of some other indicators of stress on the Army, namely divorce rates and obesity. Both of these indicators present an intuitive idea, that their increase was due to stress resultant from the wars in Iraq and Afghanistan, but had counter-intuitive conclusions more aligned with societal trends as a whole. The next chapter will examine some of the nuances included in the Army Force Generation model and some of the strategic problems that these nuances create.

## CHAPTER 4

### OTHER STRATEGIC OBSERVATIONS OF ARFORGEN

Chapter 3 demonstrated that the Army operated at a BOG:Dwell ratio approaching 1:1 for the past four years--and that this level and the AVF are sustainable. Although this result contradicts ARFORGEN, which states that a 1:2 ratio is required for sustainability, there are other issues with the model. The effect of RIPTOA overlap, introduced in Chapter 3 has much broader impacts on ARFORGEN as a construct and there are several assumptions about access to the reserve component made in the model that may be wrong. Additionally, the Army should prepare itself to maintain the level of forces that it deployed for the past several years into the foreseeable future, and at the same time understand that the military, including the Army, can meet all *QDR* requirements. Finally, the ARFORGEN model, as constructed, contains serious force sizing implications which may require re-examination in light of the conclusions made in Chapter 3.

#### RIPTOA's Affect on ARFORGEN

ARFORGEN is described very clearly by the Army as a system that can constantly deploy sixteen Active component BCTs in a forty-eight BCT force and maintain a 1:2 BOG:Dwell ratio. However, this construct does not account for unit overlap, or RIPTOA (introduced in chapter 2). In a planning construct that excludes or ignores the need for RIPTOA overlap, units simply fall in back to back with the unit that they are replacing, as indicated in the figure in chapter 2 (figure 3). This type of situation would indicate that there was no period where the seasoned unit taught the incoming unit

the nuances of its mission, its area of responsibility, or the hard lessons it had learned over the course of its deployment. In reality, units do not cleanly replace each other on exactly the same day because of RIPTOA overlap, and this reality is depicted in figure 7 for both a 1:2 and a 1:1 BOG:Dwell ratio. The overlap, when depicted correctly, impacts on the rotation cycle and associated BOG:Dwell ratio of the unit. The significance of the impact is a factor of the duration of the overlap, the duration of the deployment, and the length of the dwell time, but the impact clearly places a wrinkle in the ARFORGEN model.

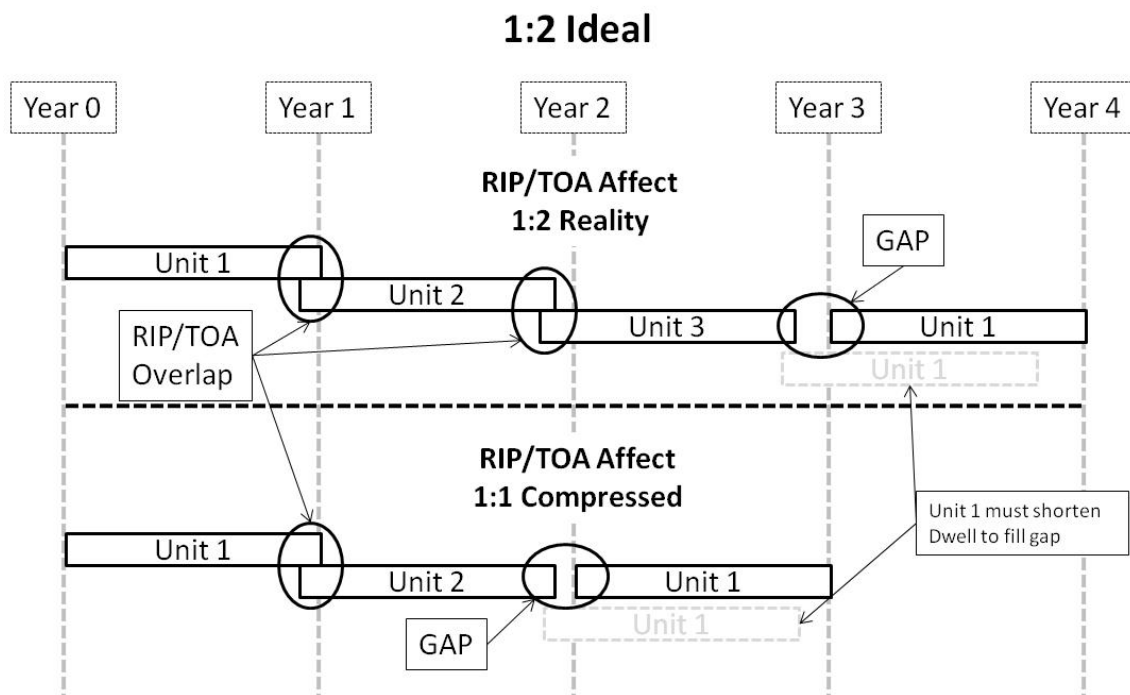


Figure 7. RIPTOA Effect

Source: Created by author.

The significance of the RIPTOA overlap problem is contained in the assumptions laid out within ARFORGEN. As stated, the sustainable surge goal ratio of the model is a BOG:Dwell ratio of 1:2, with twelve months deployed, followed by twenty-four months at home. Evenly divided, an Army composed of forty-eight active component BCTs (depicted as “AC BCTs”) and operating at a 1:2 ratio would have sixteen BCTs in the available pool, sixteen in the Train/Ready Pool, and sixteen in the Reset Pool. This is exactly what was displayed in the 2007 Army Posture Statement in figure 8 below. (Recall that the pools were renamed in the 2008 *Army Strategy*.)

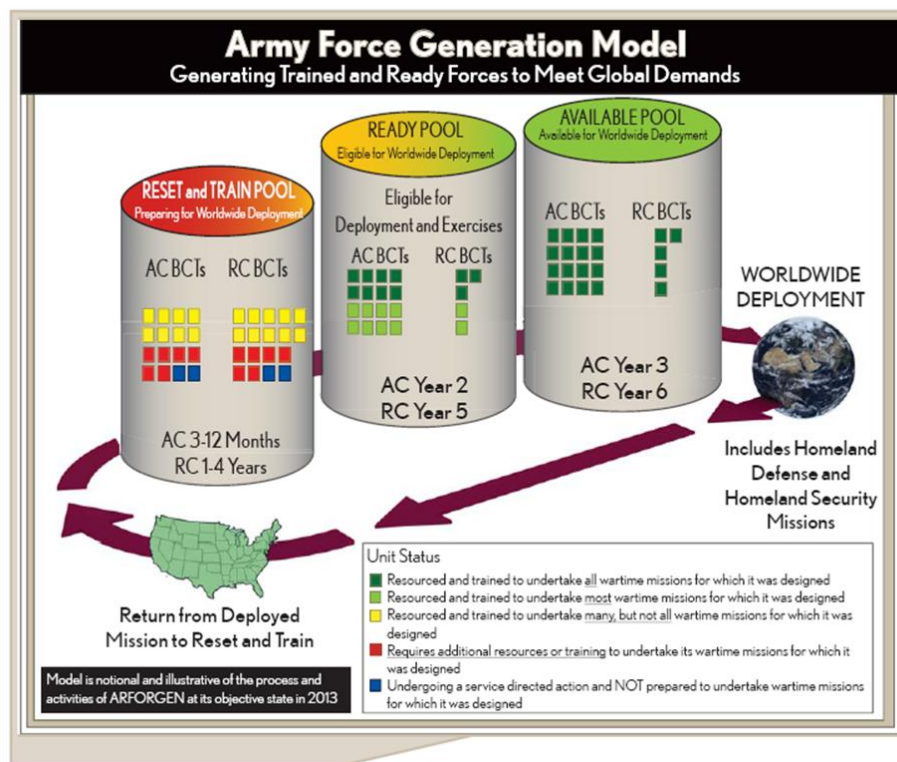


Figure 8. Army Force Generation Model

Source: Department of the Army, *2007 Army Posture Statement* (Washington, DC: Government Printing Office, 2007), A-3.

However, assuming a forty day RIPTOA factor, and the ARFORGEN goal of twelve month deployments (365 days), the model would require a ~11 percent overage of units to fill all of the time units overlap (40 days divided by 365 days = ~11 percent). In other words, a force of forty-eight BCTs would require an additional six BCTs (11 percent of 48 rounded up), over the life of the model to maintain a goal ratio of 1:2 *and* a constant deployment of 16 BCTs. Because of RIPTOA overlap, either a gap would occur at some point in time (less than 16 BCTs deployed), or some units would not achieve the goal ratio of 1:2, the model cannot support both. Although goal ratios and cleanly divided charts facilitate understanding of the basic concepts of ARFORGEN, they do not capture this significant nuance that occurs in reality. A clearer example of the impact of RIPTOA on a 1:2 BOG:Dwell ratio is displayed in figure 9 below. The impact of RIPTOA overlap compounds over time so that a unit that should achieve a 1:2 BOG:Dwell ratio only achieves a 1:1.67 ratio.

## Calculating BOG:Dwell Ratio With RIPTOA Overlap

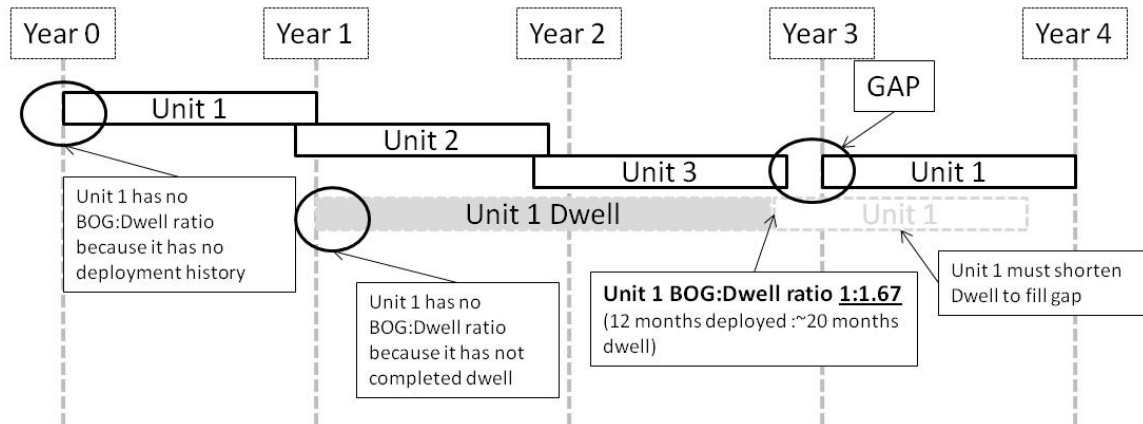


Figure 9. Calculating BOG:Dwell Ratio with RIPTOA Overlap

Source: Created by author

Ignoring RIPTOA overlap could significantly harm Army plans for the future and its ability to meet commitments around the world because without RIPTOA, the Army overstates its ability to provide forces. Imagine, in several years, explaining to the Secretary of the Army, or the Secretary of Defense, why the Army cannot achieve a 1:2 BOG:Dwell ratio with a steady deployment of 16 BCTs. The promise that the Army has made since 2006 is that it can both provide one third of its active forces for continuous deployment, and ensure that the other two thirds will achieve a 1:2 ratio before their next deployment (as demonstrated in figure 8). Because of the significant effect of RIPTOA overlap on the ARFORGEN model, this promise cannot be met--something must give. This same effect can be described as pulling deployments to the left. In the figure above, Unit 1 must deploy earlier--graphically left--than its ratio derived deployment date.

The Air Force, Navy, and Marines are not immune from the impact of RIPTOA overlap. However, with the exception of the Marine Corps, the other services currently

experience a surplus of dwell which dampens significantly the magnitude of RIPTOA overlap on their rotation policies. The fact is, RIPTOA overlap will always prevent the development of a symmetrical ARFORGEN system, but a symmetrical system appears to be the design that the Army is striving to achieve.

### Reserve Force Mobilization Authorities

Recall from chapter 2 that one of the themes of ARFORGEN from the 2006 *Game Plan* was assured and predictable accesses to the reserve component--the United States Army Reserve and the Army National Guard. Clearly defined legal restrictions exist regarding the mobilization of the Army's reserve components. But, confusion among military personnel about these distinctions exists because of a lack of understanding of the law and alternate definitions of mobilization within the military. The Joint Staff and the DOD define mobilization as composed of four mobilization *categories*: selective mobilization, partial mobilization, full mobilization, and total mobilization (Department of Defense 2008a). While these categorizations help when planning military operations and thinking of mobilization and warfare generally, they do not fit cleanly with Title X of the U.S. Code--the law. There are four *types* of mobilizations outlined by the U.S. Code: Selective Mobilization, Presidential Reserve Call-up, Partial Mobilization, and Full Mobilization. Because they rely on authorities outside of the DOD, understanding three of these types in particular, the Presidential Reserve Call-up, Partial Mobilization, and Full Mobilization, and their component authorities, is important in understanding the underlying assumptions of integrating Army Reserve and Army National Guard forces into ARFORGEN.



The characteristics of a Presidential Reserve Call-up, authorized under U.S. Code Title X Section 12304 (a), (b) and (c), allows a mobilization when the President determines that it is necessary to augment the active forces for an operational mission (only one mission). The president may call-up no more than 200,000 members for no more than 365 days (as amended in the 2007 National Defense Authorization Act). These forces cannot be used for domestic emergencies unless: (1) a WMD is used or threatened, or (2) a terrorist attack has occurred or is threatened (Cornell University Law School n.d.). While the President is the sole authority for a Presidential Reserve Call-up, one can see the difficulties in utilizing this authority under ARFORGEN. For example, the forces can only be utilized for a single mission. Multiple rotations to Operation Iraqi Freedom, or Operation Enduring Freedom (both single missions) would be prohibited under this authority. Additionally, the restriction to 365 days is another restriction that limits the utility of this authority under ARFORGEN.

The President may then need to use his authority, outlined in U.S. Code Title X Section 12302(a), (b), and (c), of a Partial Mobilization. In a time of National Emergency declared by the President, any member of the reserve can be called to active duty for “not more than 24 consecutive months.” No more than 1,000,000 members of the Reserve may be on active duty at any given time (Cornell University Law School n.d.). National Emergencies are declared by an Executive Order and signed by the president. While this authority solves the restriction of 365 days under a Presidential Reserve Call-up, it does not necessarily solve the problem of multiple deployments. While the term of “24 consecutive months” is clearly stated in the code, it is open to interpretation. Does this mean that a reserve soldier can be mobilized for twenty-four

months, demobilized for a single day, and then remobilized for an additional twenty-four months, all against his will? Or rather, is this a minor semantic error where the true intention of the congress was to set a limit for the mobilization of reserve forces? A 2007 Government Accountability Office report found that prior to a Secretary of Defense memorandum changing mobilization policy on January 19, 2007, involuntary mobilizations for the war on terrorism were limited to twenty-four cumulative months, but there is no cumulative time limit on involuntary mobilizations under the new policy (Government Accountability Office 2007). In fact, no reserve units have been mobilized for Iraq or Afghanistan for more than twenty-four “consecutive” months, but numerous units have spent more than twenty-four “cumulative” months mobilized due to multiple deployments (Burns 2007). However, with regards to ARFORGEN, the authority to mobilize reserve forces repeatedly is unclear, and untested, and the president must declare a National Emergency.

To quickly address the final type of mobilization outlined under the U.S. Code Title X Section 12301(a), Full Mobilization can be declared by congress, in times of war or national emergency, and the Reserves can be mobilized for the duration of the war plus six months. There is no limit on the number of reserves that can be recalled. Important to ARFORGEN, unlike other types of mobilization, Full Mobilization requires the consent of congress. In other words, no longer must the Army rely solely on the executive branch of government; it must seek authority from the legislative branch.

Administrations change over time, and if ARFORGEN is truly going to be an enduring process for the Army, it must be self contained. Reliance on the President to declare a National Emergency, or congress to declare war, is unwise. But this reliance is

required because the Army has made the reserve component an indispensable piece of the holistic ARFORGEN model (as described in chapter 2).

### Failed Assumptions: The Demand for Army Forces will not Lessen

One of the great hopes for the Army was, and continues to be, a rapid drawdown of forces in Iraq. As far back as June of 2006, General George Casey, the American commander in Iraq, “envisioned reducing the U.S. force from the current 15 combat brigades to as few as 10 within six months” (Woodward 2008, 59). Going even further, he predicted that by December 2007 only five to six combat brigades would remain. In fact, it was in January of 2007 that the President announced that he was going to “surge” forces into Iraq, increasing the total number of combat brigades (whitehouse.gov 2007). Assurances that the demand for Army forces would reduce quickly were made to the Army for some time. Bob Woodward claims that the Army even developed a classified chart called the “Failed Assumptions Chart” that showed:

The plans for drawing down brigades in Iraq--sometimes very dramatically--going back to 2003. On every occasion, the plans had not been realized, and the same number of about 15 brigades remained. (Woodward 2008, 72)

From as early as 2003 through 2008, there was no relief for the Army in Iraq. This history of failed assumptions would seem to indicate that projecting forward, one would not expect the demand for forces to decline. And, statements by senior administration officials reinforce this expectation.

In an article in *Foreign Affairs* in December of 2008, Secretary of Defense Robert M. Gates stated that “In Iraq, the number of U.S. Combat units there will decline over time . . . Still, there will continue to be some kind of U.S. advisory and counterterrorism effort in Iraq for years to come” (Gates 2009, 28). Here is another assumption about the

level of effort required in Iraq, which may or may not prove to be valid. Yet, Secretary Gates does admit to a lasting commitment. Concerning Afghanistan, he goes on to say that “U.S. troop levels are rising, with the likelihood of more increases in the year ahead” (Gates 2009, 29). About the same time that this article in *Foreign Affairs* was published, Admiral Michael Mullen, the Chairman of the Joint Chiefs of Staff, announced that force levels in Afghanistan would increase between 20,000 and 30,000 U.S. soldiers by the summer of 2008 (Straziuso 2008). Evidently, the cumulative level of effort required of the military is unlikely to decrease for the foreseeable future--and this is an important point to make.

Even more tellingly, the Army Chief of Staff, General George Casey, projects a “slight increase” in the number of soldiers deployed between January 2009 and mid-2010. Additionally, General Casey stated that “the plan to get soldiers back to more than 18 months’ dwell time is not yet in place and won’t be for at least two years” (Cavallaro and Tan 2009). In other words, the Army will remain at less than a 1:1.5 (12 months deployed, 18 months dwell) through 2011. This conflicts slightly with Secretary Gates’ assessment of dwell in congressional testimony given in January 2009. “By October 2010, Gates said, commanders plan to give troops 24 months at home between deployments. . . by 2011, when most U.S. ground forces are expected to be out of Iraq, that dwell time would grow to 30 months” (Shane 2009). By this estimation, it will take until late 2010 to reach 1:2 and above, almost another two full years. Finally, more recent developments indicate that these timelines may be delayed further. In February of 2009, General David McKiernan, the commander of international forces in Afghanistan

announced the United States would keep about 60,000 troops in Afghanistan for at least the next three to four years to combat an increasingly violent insurgency (Tyson 2009).

Because ARFORGEN claims that any requirement for forces that pushes the BOG:Dwell ratio below 1:2 is unsustainable, then it is clear that the Army has both been unsustainable since 2005 and will continue to be unsustainable for the foreseeable future, because force levels are not going down.

There are two levers that one can adjust in order to change the BOG:Dwell of the Army: demand and supply. For example, if demand (the number of brigades required to deploy) declines, then the Army has more brigades at home station, and these brigades will accrue dwell time thus increasing the BOG:Dwell ratio. The second lever is supply, or the size of the Army. For example, if the number of brigades required to deploy remains unchanged, but the Army grows more brigades (or access to the reserve component is increased), then the Army has more brigades at home station, and these brigades will accrue dwell time, thus increasing the BOG:Dwell ratio. Since it is apparent demand will not reduce, the only lever available is supply. The implications of increasing the supply and of force sizing are addressed later.

#### Army Readiness and Meeting All ODR Requirements

The opening statement of this paper stated that the demand for forces “limits our ability to provide ready forces for other contingencies.” So, the inherent question is what is the limit that this statement implies? In light of the analysis in chapter 3 it would be accurate to state that the active component Army could not respond quickly to any other contingency, because roughly half the force is deployed, while the other half is preparing for its next deployment. The debate about additional contingencies stretches back to

2003 when concerns about the readiness of the Army first emerged and continue through today with the Chairman of the Joint Chiefs of Staff submitting to congress a report stating that the level of risk to the United States is “significant.” However, as articulated by senior military leaders, the military remains capable of meeting additional contingencies, just not as quickly as it would like.

In December of 2003, while the first major re-deployment of troops from Iraq was being conducted, the Army announced that readiness for the Army would drop. Four of the Army’s divisions, roughly 40 percent of the active duty force, would “not be fully combat-ready for up to six months next year, leaving the nation with relatively few ready troops in the event of a major conflict in North Korea or elsewhere” (Leob 2003). As the Army continued to fight over the next two years, little was heard about the risks of the Army’s ability to respond to another conflict until 2005 when a report to congress from the Defense Department warned of “higher risk of less swiftly and easily defeating potential foes, though officials maintained that U.S. forces could handle any military threat that presents itself” (White and Tyson 2005). While acknowledging that it would take longer to defeat potential foes, defense officials remained confident that the U.S. military could adequately meet any threat.

By fall of 2006, the question still lingered, could the DOD meet potential adversaries? General Peter Pace, the Chairman of the Joint Chiefs of Staff at the time, while conceding that units were “not fully equipped as they would be if there wasn’t a war going on,” remained confident that the nation could “generate overwhelming combat power tomorrow to defend our national interests” (Hedges 2006). In 2007 the debate continued as then Army Chief of Staff General Peter J. Schoomaker briefed congress that

“we have a strategy right now that is outstripping the means to execute it” (Tyson 2007).

As an example of this mismatch, the Army did not have a brigade ready to deploy within hours to a crisis, as it had historically maintained. However, in earlier testimony to the House Armed Services Committee, General Peter Pace, Chairman of the Joint Chiefs of Staff, responsible for all branches of the military, stated that the military could handle another contingency, but that “it will not be as precise as we would like, nor will it be on the timelines that we would prefer, because we would then, while engaged in one fight, have to reallocate resources and remobilize the Guard and reserves” (Tyson 2007).

While apparent that there were readiness issues lingering within the Army, the Chairman of the Joint Chiefs of Staff was not willing to cede the point that the military, as a whole, was unable to respond to a contingency.

A new Chairman of the Joint Chiefs of Staff, Admiral Michael Mullen, provided further insight into the reasoning why the military remained capable of responding to contingencies. In October of 2007 he acknowledged that the other contingencies had risks and challenges, but he described the Air Force and Navy as America’s “strategic reserve,” ready to engage in operations outside of Iraq and Afghanistan (Shanker 2007). It is apparent then, that through the holistic lens of the Chairman of the Joint Chiefs of Staff, the U.S. military was still ready to meet potential challenges. But concern continued, and in February of 2009, “for the third consecutive year, a classified Pentagon assessment has concluded there is a significant risk that the US military could not respond quickly and fully to any new crisis” (Baldor 2009). Again, the news is that the military could not respond quickly and fully, which is a long way from stating that it could not respond. While ground forces may not be prepared to meet rapid timelines,

naval and air force assets remained poised to react quickly and react as a strategic reserve. Additionally, the reserve component remains available, with time, to meet additional contingencies. In fact, the mobilization authorities described earlier provide a cushion for the DOD to meet its most demanding requirement, as outlined in the *QDR*--a surge in Conduct Conventional Campaigns. Because the Army retains a large amount of its combat capability in the Reserve Components, the congress still has the option to leverage its authority to activate all of the reserve forces for the duration of the war, plus 6 months. Even operating at today's pace, the military retains the ability to surge in conventional campaign through the leveraging of the reserve component.

The risks of continuous deployments overseas over the past seven years by the Army are apparent and have been articulated by the military's senior leaders--the military may not be able to respond as rapidly, or as fully as it would like. However, the formulation of US naval and air forces as a "strategic reserve," and the resources available through the reserve components, do provide adequate response capability for the U.S. and thus allow the military, as a whole, to meet its *QDR* requirements.

#### The Elephant in the Room: Force Sizing Implications

The 2006 Army Game Plan states that "ARFORGEN is not a force sizing construct" (Department of the Army 2006a). Stating that it is not a force sizing construct does not make it true since the relationship with force sizing is inescapable. Because the model so clearly defines BOG:Dwell goals for each level of demand outlined in the *QDR* in striking terms like "sustainable surge", it actually does serve as a force sizing construct. Anything less than the sustainable surge target is unsustainable, and because it is unsustainable then one of two things must change, either the demand for forces or the



size of the force. Seven years of evidence indicates that the demand for forces will not change, the remaining alternative is to increase the size of the force. In this sense, ARFORGEN is a force sizing construct.

A very rough measure of the demand for BCTs can be made by adding the total number of deployments over the past six years and dividing by six. While crude, this measure will give a general idea of the number of overseas requirements. There have been a total of ninety-seven deployments, therefore indicating an average demand of sixteen BCTs per year. This is the number that is sustainable at a 1:2 level in a forty-eight BCT Army, but the Army won't reach a forty-eight BCT size until 2011. Even when the Army does achieve forty-eight BCTs, more will be required to maintain a demand of sixteen BCTs a year, as previously outlined in the RIPTOA overlap discussion. Accounting for a RIPTOA factor of forty days in a 365 day rotation, equates to an eleven percent overlap. Therefore, an additional six BCTs are required, increasing the size of the Army from forty-eight to fifty-four BCTs. This force is eleven percent larger than the current force, would require eleven percent more of the support structure and funding. Obviously, the force sizing implications are large and carry consequences.

This estimation is conservative compared to other estimations of the shortfall of active component BCTs needed to achieve a 1:2 BOG:Dwell ratio. The Defense Science board, in a 2007 report, concluded that, "to achieve the two-year dwell, an additional 27 active component BCTs, beyond the six already planned, will be required to meet current Central Command requirements" (Defense Science Board Task Force 2007, 42). This conclusion was drawn from a slightly different set of assumptions. For example, this analysis rested on a BCT demand in September of 2007 which fully represented the

height of the “surge” of brigades to Iraq, but the analysis did not include RIPTOA overlap. Although this analysis cannot be compared equitably with the analysis presented above, others have also noted that current plans for growth and assumptions of demand will not achieve a 1:2 ratio. Consequently, the Army appears to have no plan to achieve its “sustainable surge” level of 1:2.

As demonstrated in chapter 3, the Army is sustainable at levels of stress less than 1:2. This finding implies that sizing constructs based on a 1:2 ratio are inherently flawed because there is no need to achieve a 1:2 ratio to maintain a viable Army. The dual conclusions that ARFORGEN is sustainable at less than 1:2 and that it serves as a force sizing construct, call into question some of the founding assumptions of the model.

### Summary

This chapter began with an examination of the effects of RIPTOA on the ARFORGEN model and noted that the model, as currently described, does not account for the significant increase in forces when RIPTOA is applied. This was followed by an examination of current authorities under the law concerning the mobilization of the reserve component and the observation that access to the reserve component, which is assumed under ARFORGEN, can change with a change in policy or administrations. This should concern the Army because it does not legally possess assured and predictable access to the reserve component. Additionally, it is apparent that the level of demand for forces is unlikely to diminish in the foreseeable future. While forces are withdrawn from Iraq, additional forces will be sent to Afghanistan, offsetting any overall reduction, and these forces are expected to remain in Afghanistan for the next three to five years. Regardless of the stress on the Army, the military as a whole, as claimed by consecutive

Chairmen of the Joint Chiefs of Staff, is able to respond to all possible contingencies, just not as quickly or fully as desired. Finally, as ARFORGEN is currently constructed, it contains force sizing implications that are tied to target ratios (which were demonstrated to be wrong in chapter 3). Clearly, there are serious issues with ARFORGEN as it is currently formulated.

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

Resting on the premise that only a threat to the AVF will cause the Army to be unsustainable, this thesis asked if the current demand for forces in Iraq and Afghanistan exceeded the sustainable supply. As a secondary question, this thesis asked what the past seven years tell us about how the Army Force Generation model is currently constructed. The Army Force Generation model contains target deployment ratios that have proven to be well above the actual deployment ratios of the past four years. When compared to the actual health of the all volunteer force over the past four years, one can only conclude that the current demand for forces in Iraq and Afghanistan is sustainable, and that the target ratios are wrong. With regards to the construct of ARFORGEN, this thesis found that the Army's model does not account for unit overlap, that it is reliant on mobilization authorities it does not possess, and because of its insistence on target ratios it serves as a force sizing construct. Clearly, the Army's message of unsustainability and its current construct of ARFORGEN should be re-evaluated in light of these findings.

Chapter 2 demonstrated that ARFORGEN was designed to respond to a world of continuous deployments. In order to do this, it discarded the concept of tiered readiness and adopted a progressive readiness system that cycles units through three phases of readiness--all linked to goal ratios of deployment time (BOG) and Dwell time. These ratios state that at a 1:3 BOG:Dwell ratio the Army is in a "steady-state," while at a 1:2 ratio the Army can execute a "sustainable surge." Ratios below 1:2 BOG:Dwell, the Army states are unsustainable.

As outlined in detail in chapter 3, over the past seven years, and certainly between 2005 and 2008, the Army maintained a ratio less than 1:2, and from 2006 onward (with outliers removed) maintained a ratio of less than 1:1.5. These ratios, reaching their nadir in 2008, likely led the Army to make the statements that open this thesis--that the level of demand exceeds the sustainable supply and that this tempo is unsustainable. However, these levels of stress corresponded with an Army that was achieving its recruitment and retention goals. Concerns about officer shortfalls and the quality of recruits also appear to be overplayed. The shortfall of officers was created by the Army, and recruit quality, while falling, has yet to exceed any policy or legal restriction. Other indicators of stress such as increasing rates of obesity and divorce appear to be sensational and the serious academic thought behind these trends indicate that they correlate to general trends among the population rather than a systemic issue within the Army.

However, the rising number of suicides among Army soldiers since 2001, and alarmingly since 2006, is especially disconcerting. This particular indicator requires much attention, and while this increase in suicides is not definitively linked to the wars in Iraq and Afghanistan, any reasonable person can make the assumption that the correlation of the two indicates some level of causation. But, suicides do not appear to have made the Army undesirable to others as recruitment and retention remained strong despite rising rates.

Chapter 4 outlined some other issues with the ARFORGEN concept, beyond the previously established BOG:Dwell ratios. Excluding unit overlap, or RIPTOA calculations, in the development and presentation of the concept is a serious issue and causes the Army to overstate its ability to provide forces. Certain legal restrictions may

prevent the utilization of the Army's reserve component in the future. Over the past seven years there were numerous failed assumptions that continued to inaccurately predict the withdrawal of Army forces from Iraq. These failed assumptions may continue as a new presidential administration takes office and is faced with similar tradeoffs as the previous administration. Regardless of these failed assumptions, senior leaders indicated quite clearly that the American military is capable of meeting additional crisis, just not on the timelines or with the forces they would prefer. Finally, there are serious force sizing implications evident within the Army's model. The next section will attempt to draw additional conclusions from all that has been presented in this thesis.

### ARFORGEN Implications and Recommendations

The evidence indicates that the target ratios outlined in ARFORGEN require revision. It is not clear what ratios are appropriate for ARFORGEN, but an argument could be made that a "sustainable surge" should be reset from a 1:2 goal to a 1:1.5, or perhaps even a 1:1 goal. However, the best option may be to discard target ratios completely.

Today's continuous supply of manned, trained, and equipped units meets the demands for Army forces through an intensively managed process that varies deployment and dwell time for units. Over the past seven years the Army demonstrated its flexibility by adapting to changes in the deployment timelines again and again (appendix B). However, associated target ratios, especially during the implementation phase of ARFORGEN, may hinder the flexibility already inherent within ARFORGEN. Because systems designers will design systems that match goals, they may miss the opportunity to develop a truly flexible system. For example, if a plant is designed to return tanks, under

normal operations, to units in 12 months, then adjusting to 6 months may prove exceedingly difficult if the timeline changes. The Army would be better served by systems that are flexible and can quickly meet a range of possibilities. In this sense, the target ratios outlined in ARFORGEN should be discarded and replaced with a fluid and flexible system designed to meet a range of possibilities.

The obvious question now is how then do I manage my forces in ARFORGEN without goals? The best answer is to use the demand of forces and then intensively manage both BOG times and Dwell times as required. Because the Army is unable to predict accurately what the future demand of forces will be, it is imperative to continue to intensively manage the scheduling and ARFORGEN processes of units. The intensive management of the process is not a clean, systematic, or regimented approach. It is messy, changes often, requires nimble action and reaction, and is difficult to do. But the Army proved over the past seven years that it can manage such a process and provide ready forces. Therefore, an intensively managed process, rather than a goal driven process, appears to be a better method of control.

### Strategic Implications

While this thesis demonstrated that the Army maintained the ability to support the constant demand for forces at a BOG:Dwell ratio of far less than 1:2, there may be some perverse consequences. Today, politicians and the public alike demonstrate tremendous concern for the armed services fighting two wars. This concern allowed large amounts of resources to be directed to improve the lives of both soldiers and their families. But, as the Army continues to demonstrate its ability to maintain the All-Volunteer Force in the face of this deployment tempo, this concern may fade. The resources that were directed

at the Army may slacken as a new standard for deployment tempo will be set in the public and the political mind.

Recruitment and retention, the foundations of the All-Volunteer Force, are likely to remain at or above target levels through 2009 and 2010 due to the faltering American and global economies. The positive recruitment and retention inherent in a poor economy will only reinforce the perception that the Army can maintain a high level of deployment tempo with little disturbance to the health of the force. The budding success of the American military in Iraq will transfer in the coming years to the mountains of Afghanistan. A drawdown of forces in Iraq will likely be followed by an equal increase of forces in Afghanistan and the overall stress on the Army will likely remain as high as it has been over the past seven years.

The weak economy will also likely limit federal military expenditures because demands for direct economic stimulus will compete with military requirements. Force sizing implications of meeting ARFORGEN target ratios are severe and politically unpalatable in light of the Army's ability, and perceived continued ability, to meet deployment demands at less than a 1:2 BOG:Dwell. Currently, the DOD holds the position that the ultimate rotation goal for Army active duty forces is 12 months deployed and 24 months at home (Department of Defense 2007). This goal itself may slip in light of continuing military demands and a tight federal budget because an increase in the size of the Army, by any amount, carries tremendous cost.

Finally, because the sustainable deployment tempo of the Army is lower than the two years espoused by the Army (as demonstrated in this thesis), it becomes easier for politicians, supported by the public, to continue to demand a high level of deployments



from the Army. In other words, because the resiliency of the AVF has been demonstrated over the past seven years, politicians and the public may not feel constrained in leveraging the Army in international expeditions in the future.

### Areas for Further Research

Some areas for further research were discovered while answering this research question. A thorough study of the impacts of deployment and dwell times on soldiers and their families is lacking. The present war provides a variety of deployment lengths, dwell times, and a number of years that are available to study. While this type of study may have to wait until several years after the wars conclude (to measure persistent effects) it would certainly be helpful to future policymakers.

Studies of methods to better manage ARFORGEN and appropriate target ratios would be helpful. This thesis demonstrated that the current ratios are inaccurate in portraying sustainability. A serious study that includes the impacts of intensive management of the current system and deployment and dwell lengths would be helpful.

### Final Thoughts

Why does the Army continue to describe the current demand for forces as unsustainable when the Army continues to sustain both the AVF and the current level of demand? In light of the ARFORGEN target ratios, one has to ask, is the model and its associated target ratios driving the assessment of unsustainability? This is highly unlikely. But, in all the research for this thesis it was never clear what exactly it was that made the Army unsustainable and why we should take the opening assessments from several Army documents at face value.

It would be unwise for the Army to continue to pronounce that any deployment cycle of less than 1:2 is “unsustainable.” The proclamations lead one to several possibilities: the Army will hollow and become less effective, requirements must decline, or the Army must grow larger. The Army is not “hollowing” but continues to fully man an AVF with people from the marketplace. The requirements for Army forces are not going to decline (failed assumptions) but will likely continue at the level of the past seven years. In fact, the demonstration of the ability of the Army to meet the levels of demand over the past seven years indicates that there is no need to reduce force levels for the health of the Army--the Army is healthy. Finally, the Army does not need to grow larger in order to reduce stress on the force. The Army, between 2005 and 2008, demonstrated the ability to sustain a high level of demand at its current size. Therefore, continued announcements that the Army is unsustainable are reminiscent of the boy who cried wolf; each announcement, when later disproven, carries less meaning and may eventually be ignored. In the end, despite the evidence presented in this thesis, leaders will likely leverage public and political sentiment about the perceived stress on the force to improve the Army--they would be remiss if they did not take this advantage.

## APPENDIX A

### BRIGADE COMBAT TEAM ANALYSIS

This appendix is provided to demonstrate how the data in figures 4 and 5 was derived. The following chart was built primarily from the September 24, 2007 and the February 9, 2009 editions of the *Army Times* which contained articles outlining historical deployments of Army BCTs (Tan 2007; Tan 2009). Information that was not in the articles, or that contradicted the articles, but that is included in the chart, is included at the end of this appendix.

## 2001 and 2002

Year	2001	2002											
Unit	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02
1/1 ID													
2/1 ID now 172nd													
3/1 ID													
4/1 ID													
1/1 AD													
2/1 AD													
3/1 AD now 2/1 ID													
4/1 AD (not active)													
1/1 CD													
2/1 CD													
3/1 CD													
4/1 CD now 4/1 AD													
1/2 ID (Korea)													
2/2 ID now 4/4 ID													
3/2 ID													
2CR now 4/2 ID													
1/3 ID													
2/3 ID													
3/3 ID													
4/3 ID													
1/4 ID													
2/4 ID													
3/4 ID													
4/4 ID now 4/1 CD													
1/10 MTN													
2/10 MTN													
3/10 MTN													
4/10 MTN													
172nd now 1/25													
2/25													
3/25													
4/25													
1/82													
2/82													
3/82													
4/82													
1/101													
2/101													
3/101													
4/101													
1/25 now 2 CR													
3 ACR													
173rd													

## 2003

Year	2003											
Unit	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03
1/1 ID			10 Months									
2/1 ID now 172nd												
3/1 ID												
4/1 ID												
1/1 AD					14 Months							
2/1 AD				15 Months								
3/1 AD now 2/1 ID				12 Months								
4/1 AD (not active)												
1/1 CD												
2/1 CD												
3/1 CD												
4/1 CD now 4/1 AD												
1/2 ID (Korea)												
2/2 ID now 4/4 ID												
3/2 ID											12 Months	
2CR now 4/2 ID				15 Months								
1/3 ID	8 Months											
2/3 ID	11 Months											
3/3 ID	7 Months											
4/3 ID												
1/4 ID			12 Months									
2/4 ID			12 Months									
3/4 ID			12 Months									
4/4 ID now 4/1 CD												
1/10 MTN							11 Months					
2/10 MTN						8 Months						
3/10 MTN												
4/10 MTN												
172nd now 1/25												
2/25												
3/25												
4/25												
1/82		8 Months										
2/82		12 Months										
3/82	8							10 Months				
4/82												
1/101			11 Months									
2/101			11 Months									
3/101			11 Months									
4/101												
1/25 now 2 CR												
3 ACR				13 Months								
173rd			12 Months									

## 2004

Year	2004												
Unit	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	
1/1 ID													
2/1 ID now 172nd		12 Months											
3/1 ID		13 Months											
4/1 ID													
1/1 AD	14 Months												
2/1 AD	15 Months												
3/1 AD now 2/1 ID	12 Months												
4/1 AD (not active)													
1/1 CD	12 Months												
2/1 CD	13 Months												
3/1 CD				12 Months									
4/1 CD now 4/1 AD													
1/2 ID (Korea)													
2/2 ID now 4/4 ID								12 Months					
3/2 ID	12 Months												
2CR now 4/2 ID	15 Months												
1/3 ID													
2/3 ID													
3/3 ID													
4/3 ID													
1/4 ID	12 Months												
2/4 ID	12 Months												
3/4 ID	12 Months												
4/4 ID now 4/1 CD													
1/10 MTN	11 Months												
2/10 MTN						12 Months							
3/10 MTN													
4/10 MTN													
172nd now 1/25													
2/25	13 Months												
3/25				12 Months									
4/25													
1/82	4 Months												
2/82	12 Months												
3/82	10 Months												
4/82													
1/101	11 Months												
2/101	11 Months												
3/101	11 Months												
4/101													
1/25 now 2 CR								12 Months					
3 ACR	13 Months												
173rd	12 Months												

## 2005

Year	2005											
Unit	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05
1/1 ID												
2/1 ID now 172nd	12 Months											
3/1 ID	13 Months											
4/1 ID												
1/1 AD												
2/1 AD											12 Months	
3/1 AD now 2/1 ID	12 Months											
4/1 AD (not active)												
1/1 CD	12 Months											
2/1 CD	13 Months											
3/1 CD	12 Months											
4/1 CD now 4/1 AD												
1/2 ID (Korea)												
2/2 ID now 4/4 ID	12 Months											
3/2 ID												
2CR now 4/2 ID												
1/3 ID	12 Months											
2/3 ID	12 Months											
3/3 ID	12 Months											
4/3 ID	12 Months											
1/4 ID												12
2/4 ID											12 Months	
3/4 ID											12 Months	
4/4 ID now 4/1 CD												12
1/10 MTN								12 Months				
2/10 MTN	12 Months											
3/10 MTN												
4/10 MTN												
172nd now 1/25								16 Months				
2/25	13 Months											
3/25	12 Months											
4/25												
1/82						12 Months						
2/82												
3/82												
4/82												
1/101									12 Months			
2/101									12 Months			
3/101									12 Months			
4/101											12 Months	
1/25 now 2 CR	12 Months											
3 ACR				11 Months								
173rd				11 Months								

## 2006

Year	2006											
Unit	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06
1/1 ID												
2/1 ID now 172nd						15 Months						
3/1 ID												
4/1 ID												
1/1 AD	13 Months											
2/1 AD	12 Months											
3/1 AD now 2/1 ID	12											
4/1 AD (not active)												
1/1 CD										15 Months		
2/1 CD										15 Months		
3/1 CD										14 Months		
4/1 CD now 4/1 AD										14 Months		
1/2 ID (Korea)												
2/2 ID now 4/4 ID										15 Months		
3/2 ID						15 Months						
2CR now 4/2 ID												
1/3 ID	12											
2/3 ID	12											
3/3 ID	12											
4/3 ID	12											
1/4 ID	12 Months											
2/4 ID	12 Months											
3/4 ID	12 Months											
4/4 ID now 4/1 CD	12 Months											
1/10 MTN	12 Months											
2/10 MTN								15 Months				
3/10 MTN		15 Months										
4/10 MTN		4 Months										
172nd now 1/25	16 Months											
2/25												
3/25								15 Months				
4/25								15 Months				
1/82	12 Months											
2/82												
3/82								15 Months				
4/82												
1/101	12 Months											
2/101	12 Months											
3/101	12 Months											
4/101	12 Months											
1/25 now 2 CR												
3 ACR	11 Months											
173rd	11 Months											



## 2007

Year	2007											
Unit	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07
1/1 ID												
2/1 ID now 172nd	15 Months											
3/1 ID												
4/1 ID	14 Months											
1/1 AD	13 Months											
2/1 AD												
3/1 AD now 2/1 ID												
4/1 AD (not active)												
1/1 CD	15 Months											
2/1 CD	15 Months											
3/1 CD	14 Months											
4/1 CD now 4/1 AD	14 Months											
1/2 ID (Korea)												
2/2 ID now 4/4 ID	15 Months											
3/2 ID	15 Months											
2CR now 4/2 ID					15 Months							
1/3 ID		14 Months										
2/3 ID					14 Months							
3/3 ID		15 Months										
4/3 ID										14 Months		
1/4 ID												
2/4 ID												
3/4 ID											15 Months	
4/4 ID now 4/1 CD												
1/10 MTN									14 Months			
2/10 MTN	15 Months											
3/10 MTN	15 Months											
4/10 MTN											14 Months	
172nd now 1/25												
2/25												15
3/25	15 Months											
4/25	15 Months											
1/82						13 Months						
2/82	14 Months											
3/82	15 Months											
4/82	15 Months											
1/101									15 Months			
2/101										15 Months		
3/101									14 Months			
4/101												
1/25 now 2 CR								15 Months				
3 ACR											15 Months	
173rd						15 Months						

## 2008

Year	2008											
Unit	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08
1/1 ID												
2/1 ID now 172nd											12 Months	
3/1 ID							15 Months					
4/1 ID	14 Months											
1/1 AD												
2/1 AD			15 Months									
3/1 AD now 2/1 ID										12 Months		
4/1 AD (not active)												
1/1 CD	15 Mo.											
2/1 CD	15 Mo.											
3/1 CD												12
4/1 CD now 4/1 AD												
1/2 ID (Korea)												
2/2 ID now 4/4 ID	15 Mo.											
3/2 ID												
4/2 ID	15 Months											
1/3 ID	14 Months											
2/3 ID	14 Months											
3/3 ID	15 Months											
4/3 ID	15 Months											
1/4 ID			15 Months						12 Months			
2/4 ID									12 Months			
3/4 ID	15 Months											
4/4 ID now 4/1 CD							15 Months					
1/10 MTN	14 Months											
2/10 MTN												
3/10 MTN												12
4/10 MTN	14 Months											
172nd now 1/25									12 Months			
2/25	15 Months											
3/25									12 Months			
4/25												
1/82	13 Months											
2/82	14 Months											
3/82												12
4/82	15 Months											
1/101	15 Months											
2/101	15 Months											
3/101	14 Months											
4/101				15 Months								
1/25 now 2 CR	15 Months											
3 ACR	15 Months											
173rd	15 Months											

### Sources for Deployments that Contradict *Army Time* Articles

The references below were used for the units noted because they appeared to be more accurate about the deployment months of specific units than the *Army Times* articles. The units that did contradict the articles are depicted in light grey in the preceding charts.

## **December 2007**

2/25

Hing, Al. 1 November 2008. Record Number of 'Warriors' choose to remain Army Strong. Strykernews.com, [http://www.strykernews.com/archives/2008/11/01/record\\_number-o.html](http://www.strykernews.com/archives/2008/11/01/record_number-o.html) (accessed 21 November 2008).

## **April 08**

4/101

Army Units Announced for Afghanistan Rotation. 09 May 2007, <http://www.army.mil/newsreleases/2007/05/09/3040-army-units-announced-for-afghanistan-rotation/> (accessed 1 January 2009).

Lowray, Jake. 22 June 2008. 101st fights war in two countries. Theleafchronicle.com <http://www.theleafchronicle.com/article/20080622/NEWS05/806200368> (accessed 1 January 2009).

## **November 08**

2/1 ID now 172nd

Robson, Seth. 28 October 2008. 172nd Infantry Brigade ships tanks, gear for deployment stripes.com, <http://www.stripes.com/article.asp?article=58434&section=104> (accessed 25 November 2008).

## **December 08**

3/10

Lester, Steve. 13 December 2008. Drum unit has stirring sendoff. Watertowndailytimes.com, <http://www.watertowndailytimes.com/article/20081213/NEWS03/312139934/-1/NEWS/Drum+unit+has+stirring+sendoff> (accessed 30 December 2008).

Diane. 12 December 2008. Fort Drum's 3rd BCT Counting On Experience For Afghanistan Deployment. Wwnytv.net, <http://www.wnytv.net/index.php/2008/12/12/fort-drums-3rd-bct-counting-on-experience-for-afghanistan-deployment/print/> (accessed 2 January 2008).

## APPENDIX B

### ROTATION POLICY CHANGES OVER TIME

1982

6 month rotations in the Sinai (Department of Defense 2003a)

1995

12 then 6 month rotations to Bosnia and Kosovo (Department of Defense 2003a)

2001

6 month rotations to Afghanistan (Department of Defense 2003a)

July 2003

12 Month rotations to Iraq (Department of Defense 2003a)

November 2003

12 Month rotations to Afghanistan (Department of Defense 2003b)

April 2007

15 Month rotations Iraq and Afghanistan, minimum 12 months home (Department of Defense 2007)

August 2008

12 month rotations Iraq and Afghanistan (Department of the Army 2008b)

## APPENDIX C

### UNITED STATES ARMY RECRUITING COMMAND INFORMATION

The following information was provided by the United States Army Recruiting Command Public Affairs Office in an e-mail to the author March 17, 2009.

Q. How did your Fiscal Year 2008 accession missions and accomplishments compare to past years?

A. The chart below shows recent USAREC mission accomplishment.

Year	Active Army			Army Reserve	
	Mission	Accessions		Mission	Accessions
1998	72,550	71,749		40,600	37,050
1999	74,500	68,210		45,584	35,035
2000	80,000	80,113		41,961	42,086
2001	75,800	75,855		34,910	35,523
2002	79,500	79,585		28,825	31,319
2003	73,800	74,132		26,400	27,365
2004	77,000	77,587		21,200	21,095
2005	80,000	73,255		22,175	19,400
2006	80,000	80,617		25,500	25,378
2007	80,000	80,410		26,500	27,055
2008	80,000	80,517		26,500	26,945

Q. What have your quality mark achievements been against the standards over the years?

A.

Regular Army				Army Reserve		
FY	HSDG	CAT I-III A	CAT IV	HSDG	CAT I-III A	CAT IV
2008	82.82%	61.99%	3.55%	89.47%	58.44%	3.34%
2007	79.07%	60.83%	3.97%	86.46%	56.84%	3.95%
2006	81.2%	61.4%	3.8%	89.2%	59.3%	3.7%
2005	87.0%	67.2%	3.91%	88.8%	66.2%	3.79%
2004	92.45%	71.06%	0.63%	92.4%	70.9%	0.8%
2003	94.43%	71.11%	0.27%	94.8%	67.7%	0.3%
2002	91.28%	68.20%	1.37%	94.9%	69.2%	0.6%
2001	90.2%	63.2%	1.90%	92.7%	64.6%	1.6%
2000	90.3%	63.5%	1.97%	90.1%	62.3%	2.0%

## REFERENCE LIST

- Army Behavioral Health Technology Office. 2007. *Army suicide event report (ASER) calendar year 2007*. Tacoma, WA: Suicide Risk Management & Surveillance Office.
- Army.com*. 2008. "Active army 12 month boots on the ground (BOG) policy." April. <http://www.army.com/news/item/3645> (accessed March 19, 2009).
- Babington, Charles, and Don Oldenburg. 2004. House GOP brings up draft in order to knock it down. *Washington Post*. October 6.
- Baldor, Lolita C. 2009. Report casts doubt on military's readiness. *Boston Globe*. February 20.
- Barnes, Julian E, and Jia-Rui Chong. 2009. "Army sees sharp rise in suicide rate." *Los Angeles Times*, January 30. <http://www.latimes.com/features/health/la-na-army-suicides30-2009jan30,0,6926327,full.story> (accessed March 19, 2009).
- Bicksler, Barbara A., Curtis L. Gilroy, and John T. Warner. 2004. *The all-volunteer force thirty years of service*. Dulles, VA: Brassey's, Inc.
- Brown, George B. 2008. A pending major crisis. Master's thesis, United States Army Command and General Staff College. [http://cgsc.cdmhost.com/cdm4/item\\_viewer.php?CISOROOT=/p4013coll2&CISOPTR=2466&CISOBOX=1&EC=3](http://cgsc.cdmhost.com/cdm4/item_viewer.php?CISOROOT=/p4013coll2&CISOPTR=2466&CISOBOX=1&EC=3) (accessed March 19, 2009)
- Burns, Robert. 2007. Alerted guard units have served before. *USA Today*, October 19. [http://www.usatoday.com/news/washington/2007-10-19-1518452173\\_x.htm](http://www.usatoday.com/news/washington/2007-10-19-1518452173_x.htm) (accessed March 19, 2009).
- Cavallaro, Gina. 2008. "Army prepschool." *Army Times*, August 5. [http://www.armytimes.com/news/2008/08/army\\_prepschool\\_080108w/](http://www.armytimes.com/news/2008/08/army_prepschool_080108w/) (accessed March 19, 2009).
- Cavallaro, Gina, and Michelle Tan. 2009. Deploying stretched resources. *Army Times*, January 26.
- Cornell University Law School. *US Code 10*. [http://www4.law.cornell.edu/uscode/10/usc\\_sec\\_10\\_00012304----000-.html](http://www4.law.cornell.edu/uscode/10/usc_sec_10_00012304----000-.html) (accessed March 19, 2009).
- . *US Code 10*. [http://www4.law.cornell.edu/uscode/10/usc\\_sec\\_10\\_00012304----000-.html](http://www4.law.cornell.edu/uscode/10/usc_sec_10_00012304----000-.html) (accessed March 19, 2009).

Defense Science Board Task Force. 2007. *Deployment of members of the national guard and reserve in the global war on terrorism*. Washington, DC: Government Printing Office.

Department of Defense. 2001. *Quadrennial defense review*. Washington, DC: Government Printing Office.

———. 2003a. “Gen. Keane press briefing on plans to rotate forces in Iraq.” *defenselink.mil*. July 23. <http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=2869> (accessed March 19, 2009).

———. 2003b. “Briefing on the force rotation plan.” *defenselink.mil*. November 6. <http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=2905> (accessed March 19, 2009).

———. 2006. *Quadrennial Defense Review*. Washington, DC: Government Printing Office.

———. 2007. “DoD news briefing with Secretary Gates and Gen. Pace from the Pentagon.” April 11. <http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=3928> (accessed March 19, 2009).

———. 2008a. “Mobilization.” *DOD Dictionary of Military Terms*, October 17. <http://www.dtic.mil/doctrine/jel/doddict/data/m/03507.html> (accessed March 19, 2009).

———. 2008b. “10,000th MRAP delivered to DoD.” *Defenselink.mil*. July 03. <http://www.defenselink.mil/releases/release.aspx?releaseid=12040> (accessed March 19, 2009).

Department of the Army. 2003. *Army posture statement 2003*. Washington, DC: Government, Printing Office.

———. 2006a. *2006 Game plan*. Washington, DC: Government Printing Office.

———. 2006b. *2006 Army posture statement*. Washington, DC: Government Printing Office.

———. 2006c. Army Regulation 220-1, *Unit status reporting*. Washington, DC: Government Printing Office.

———. *2007 Posture statement*. Washington, DC: Government Printing Office.

———. 2008a. *2008 Army modernization strategy*. Washington, DC: Government Printing Office.

- . 2008b. “Army deployments to CENTCOM return to 12 months.” *army.mil*. April 10. <http://www.army.mil/-newsreleases/2008/04/10/8420-army-deployments-to-centcom-return-to-12-months/> (accessed March 19, 2009).
- . 2008c. *2008 Army posture statement*. Washington, DC: Government Printing Office.
- . 2008d. *The Army strategy*. Washington, DC: Government Printing Office.
- Eaton, Karen M., Stephen C. Messer, Abigail L. Garvey Wilson, and Charles W. Hoge. 2006. “Strengthening the validity of population-based suicide rate comparisons: an illustration using U.S. military and civilian data.” *Suicide and Life-Threatening Behavior* (April): 182-191.
- Gates, Robert M. 2009. “A balanced strategy.” *Foreign Affairs* (January/February): 28-40.
- Government Accountability Office. 2007. *DOD lacks reliable personnel tempo data and needs quality controls to improve data accuracy*. Washington, DC: Government Printing Office.
- Hedges, Michael. 2006. With Army stretched thin, would the U.S. respond to a new crisis? *Houston Chronicle*, October 29.
- Henning, Charles A. 2006. *Army officer shortages: background and issues for congress*. Washington, DC: Government Printing Office.
- Hodge, David. 2008. *1st brigade training in kuwait*. March 25. <http://1-22infantry.org/history2/kuwait08.htm> (accessed March 19, 2009).
- Kapp, Lawrence. 2006. *Recruiting and retention: an overview of FY2005 and FY 2006 results for active and reserve component enlisted personnel*. CRS Report for Congress, Washington, DC: Government Printing Office.
- Kapp, Lawrence, and Charles A. Henning. 2008. *Recruiting and retention: an overview of FY2006 and FY2007 results for active and reserve component enlisted personnel*. CRS Report for Congress, Washington DC: Government Printing Office.
- Karney, Benjamin R., and John S. 2007. Crown. *Families under stress*. Santa Monica, CA: Rand Corporation.
- Leob, Vernon. 2003. Army will face dip in readiness; 4 divisions need to regroup after Iraq. *The Washington Post*, December 6.



- Levin, Aaron. 2008. "Dramatic increase found in soldier suicides." *Psychiatric News*. September 21. <http://pn.psychiatryonline.org/cgi/content/full/42/18/9> (accessed December 22, 2008).
- Melancon, Dave. 2008. "Chief: dwell time increase will enable Army to balance." *Army.mil*. October 30. <http://www.army.mil/-news/2008/10/30/13739-chief-dwell-time-increase-will-enable-army-to-balance> (accessed March 19, 2009).
- National Center for Health Statistics. 2007. "Health, United States, 2007 with chartbook on trends in the health of Americans." Hyattsville, MD: Government Printing Office.
- Office of the Undersecretary of Defense for Personnel and Readiness. 2004. "Recruit quality over time." <http://www.defenselink.mil/prhome/docs/recqual04.pdf> (accessed March 19, 2009).
- Oh, Gi-Taik. 2009. "Diagnoses of overweight/obesity, active component, U.S. armed forces, 1998-2008." *Medical Surveillance Monthly Report*, (January): 2-7.
- Roosevelt, Ann. 2009. Army enablers stretched, Vice Chief says. *Defense Daily*, January 22.
- Rostker, Bernard. 2006. *I want you! the evolution of the all-volunteer force*. Santa Monica, CA: RAND Corporation.
- Shane, Leo III. 2009. "Gates says longer dwell times are coming." *stripes.com*. January 28. <http://www.stripes.com/article.asp?section=104&article=60288> (accessed March 19, 2009).
- Shanker, Thom. 2007. Joint chiefs chairman looks beyond current wars. *The New York Times*, October 22.
- Straziuso, Jason. 2008. "U.S. might double Afghanistan force." *Washingtonpost.com*. December 21. <http://www.washingtonpost.com/wp-dyn/content/article/2008/12/20/AR2008122002073.html> (accessed March 19, 2009).
- Tan, Michelle. 2007. Balancing act. *Army Times*, September 24.
- . Deployment relief. 2009. *Army Times*, February 9.
- Tilghman, Andrew. 2007. "The army's other crisis." *Washington Monthly*. December 2007. <http://www.washingtonmonthly.com/features/2007/0712.tilghman.html> (accessed March 19, 2009).
- Tyson, Ann Scott. 2007. Military is ill-prepared for other conflicts. *The Washington Post*, March 19.

- . 2008. "Deployments are a factor in army's deficit of majors." *Washingtonpost.com*. August 17. <http://www.washingtonpost.com/wp-dyn/content/article/2008/07/25/AR2008072502976.html> (accessed March 19, 2009).
- . 2009. 'Sustained' push seen in Afghanistan; U.S. commander says troop level of 60,000 is needed for at least three to four years. *The Washington Post*, February 19.
- U.S. Army G-1. 2007. "U.S. army officer retention fact sheet as of May 25, 2007." May 25. <http://www.armyg1.army.mil/media.asp> (accessed March 19, 2009).
- White, Josh, and Ann Scott Tyson. 2005. Wars strain U.S. military capability, Pentagon reports. *The Washington Post*, May 3.
- whitehouse.gov. 2007. *Transcript of George W. Bush speech*. January 10. <http://www.whitehouse.gov/news/releases/2007/01/print/20070110-7.html> (accessed January 5, 2009).
- Woodward, Bob. 2008. *The war within*. New York: Simon & Schuster.
- Wright, Donald P., and Timothy R. Reese. 2008. *On point II: transition to the new campaign*. Fort Leavenworth, Kansas: Combat Studies Institute Press.
- Zoroya, Gregg. 2008. Divorce rate rises in 2008 among soldiers, marines. *USA Today*, December 3.
- . 2009. Troop obesity doubles since 2003; concerns about readiness, stress. *USA Today*, February 10.

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Department of Logistics and Resource Operations  
USACGSC  
100 Stimson Ave.  
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USACGSC  
100 Stimson Ave.  
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